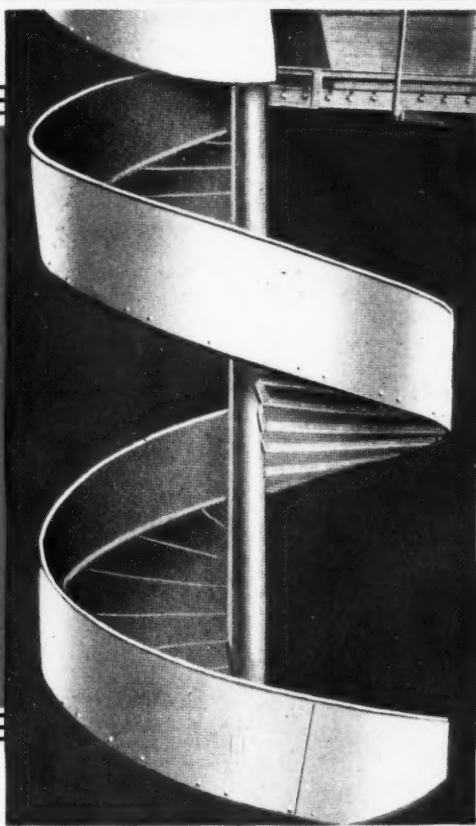


American Artisan

THE WARM AIR HEATING
AND SHEET METAL JOURNAL
FOUNDED 1880



Choose your
most important
raw material
carefully



Save with Steel

TO the foundation of raw material you add your work, experience, skill. Without a good foundation . . . raw material carefully selected to fit the need exactly . . . good work may soon be forgotten. A job which could have been a recommendation to you may become a reflection to live down.

By standardizing on Inland Open Hearth Sheet Steel you can be sure the exact grade you need is promptly available . . . and that every sheet in the lot

will be as uniform as long experience and continual research can make sheet steel.

Examples of special grade sheets for specific purposes are Inland Ventilating Stock, Inland Galvanized Tight Coated for use where considerable bending and forming are necessary, and Inland Copper-Alloy Steel, the longest lived and lowest cost type of rust resisting sheets made.

Write for complete information.

INLAND STEEL COMPANY

Sheets
Bars
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ABLE SERVANT OF



THE CENTRAL WEST

38 SO. DEARBORN STREET, CHICAGO

Rails
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Rivets
Billets

MARCH 1, 1930

PROGRESS MAKES PEOPLE DISSATISFIED

*With Yesterday's
Achievements*

RUDY FURNACES

*Have Kept Pace
With Progress*

THEY upset tradition fifteen years ago and set new standards of design. Rudy influenced the adoption of: 1. Larger casings. 2. Double covered joints. 3. Greater radiating surfaces. 4. Larger water pans. 5. Better installations and 6. Led the way from "hot-air" heating to "warm air" heating.

TO-DAY

Realizing that the public is dissatisfied with furnaces that are sold and installed on a price basis and believing that the home owner is ready for a more complete heating service—

Rudy Again Advocates Better Heating



RUDY HY-POWER DIVING FLUE FURNACE

40% more radiating surface than the ordinary furnace. This all cast Diving Flue furnace can be sold to the home owner who wants the best—it has no competition. It stands supreme in the industry. It is particularly adapted to oil burning.

TEN YEAR GUARANTEE

Rudy products are sold under a sensible, workable guarantee.

TIME PAYMENT PLAN

Rudy finances dealers' paper and relieves the strain on dealers' finance.

PROGRESSIVE LEADERSHIP

The record of Rudy leadership in the past has been one of success. Your inquiry will identify you with the progressive dealers of the future.

IN doing so Rudy offers the progressive dealer an opportunity for greater profits and freedom from unprofitable competition.

YOUR RUDY AGENCY OFFERS

1. Unquestioned quality.
2. A more modern product.
3. Correct engineering.
4. Fair prices.
5. Greater sales opportunities.
6. Intelligent leadership.
7. Progressive policies.
8. Honest treatment.

AUTOMATIC FUELING

Realizing that complete heating service implied automatic fueling, Rudy has devised, after 5 years of experimentation the new "Bon-Air" all cast Gas Fired Furnace. To those dealers situated in communities with favorable gas rates, we commend this unit. It is approved by AGA and indorsed by gas executives everywhere.



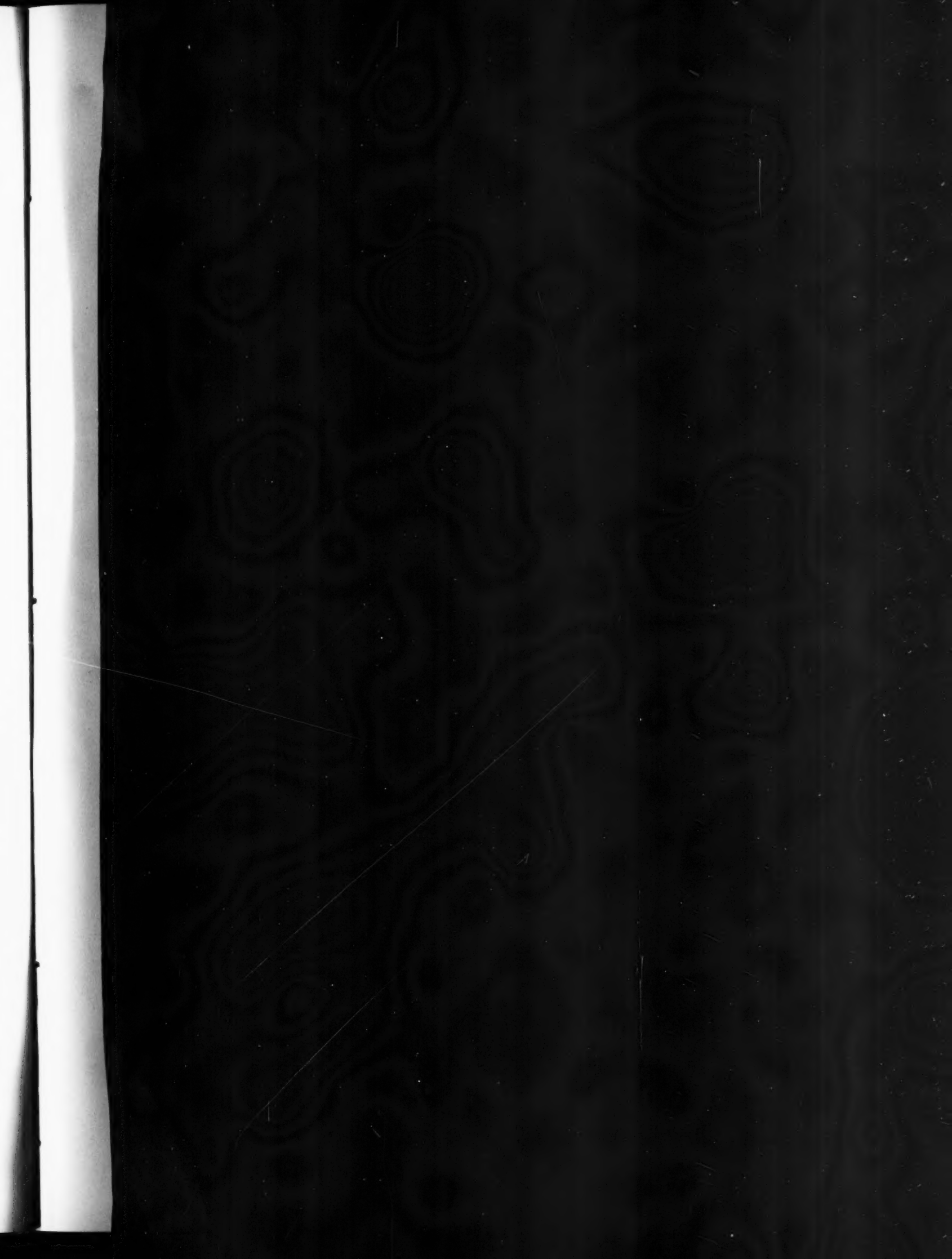
TOP RADIATOR FURNACE

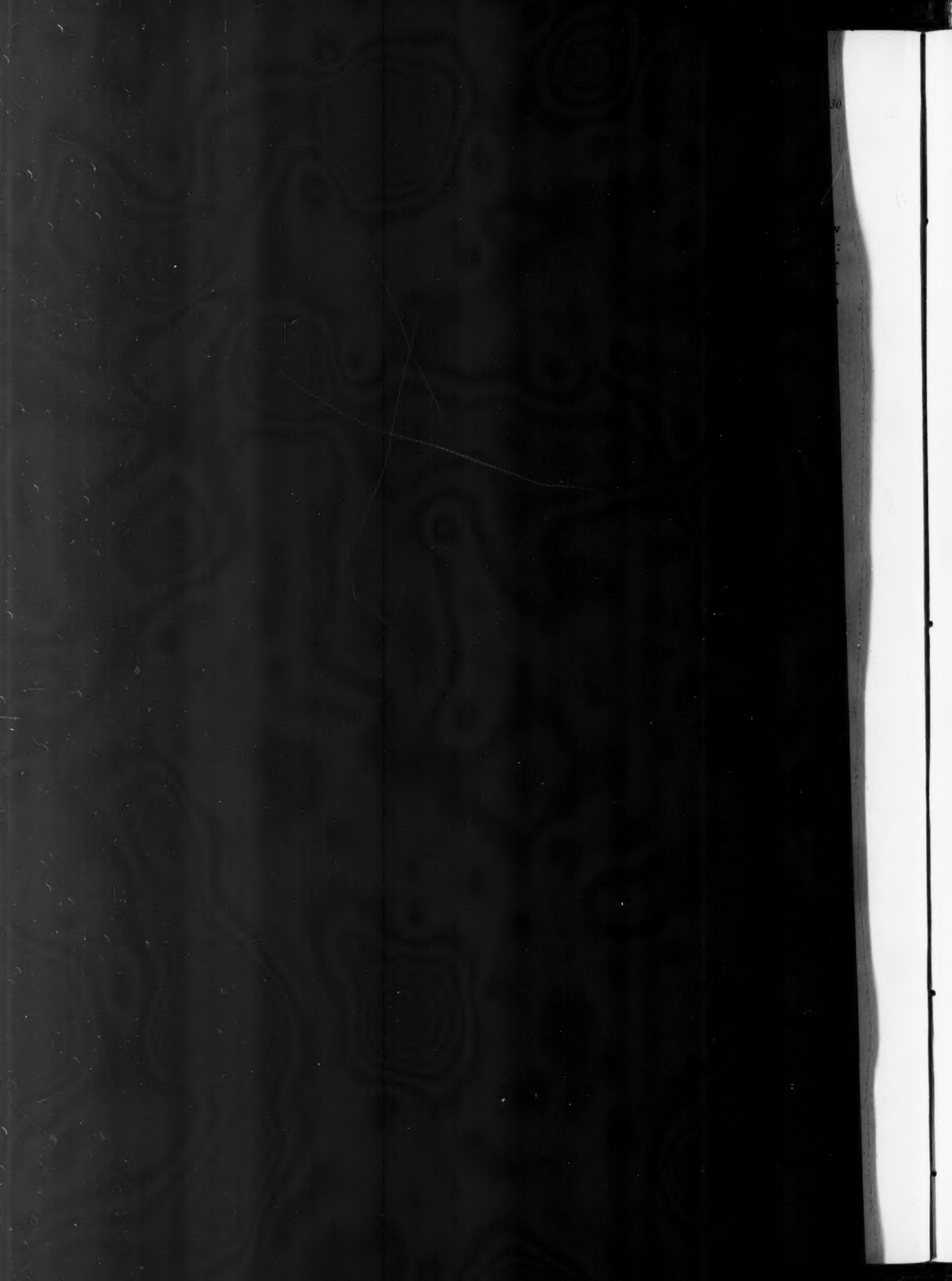
A complete line of 6 sizes—a size for every requirement; beautifully proportioned and scientifically rated. Highly efficient—moderately priced.



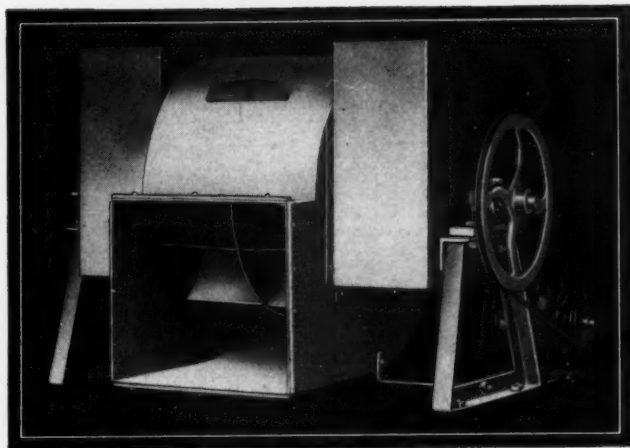
"Bon-Air" Gas Fired Furnace

RUDY FURNACE CO., DOWAGIAC, MICH.





Not a Fan- a Blower!



Endorsed and Distributed

by

Motor Wheel Corporation, Lansing, Michigan

Heating Systems, Inc., Joliet, Illinois

Lamneck Company, Columbus, Ohio

Anderson & Kroff, Toledo, Ohio

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FURBLO Makes Mechanical Heating the Buy-Word for 1930

The dealer who clings to the straight gravity idea this year will find himself losing out to his more progressive competitor who sells "mechanical heating."

"Mechanical heating" was made practical by FURBLO! The difference between heating a home with a straight gravity warm air system, and heating it with FURBLO is so remarkable that engineers are gradually changing factory plans, adopting FURBLO, and endorsing FURBLO exclusively.

FURBLO protects the new furnace installation and makes it possible to guarantee 100% satisfaction. FURBLO will, in most cases, cure a sick furnace and give the home owner the kind of heating plant he always wanted, but never was able to get.

Use FURBLO on every installation and you not only increase your profit, but have the satisfaction of doing the job right.

**Furblo
will
DOUBLE
your
Income
in
1930!**



Furblo



The Quiet Efficient Furnace Blower

LAKE SIDE COMPANY

HERMANSVILLE - - - MICHIGAN

Manufacturers of Lakeside Ventilating Equipment

LAKE SIDE CO.,
Dept. 3, Hermansville, Michigan

I want that interesting new booklet, "The Heart of the Home," also complete information about FURBLO!

I am a
(dealer or jobber)

Selling furnaces
(trade name)

Name

Address

City State

Published Every Other Week by Porter, Spofford, Langtry Corp., 139 North Clark Street, Chicago, Illinois. AMERICAN ARTISAN—the Warm Air Heating and Sheet Metal Journal—entered as second class matter, January 29, 1930, at the Post Office at Chicago, Illinois, under act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record.



a
home
without
a
headache

NIAGARA
TODAY
KEEPS THE
DOCTOR
AWAY

They're Shopping Around For Health



The NIAGARA is exceptionally neat and attractive in appearance, with a standard modern finish of oxidized copper flaked with gold, that is heat resisting and durable.

HOME owners are shopping around for healthy heat—the kind a NIAGARA Warm Air Heating System gives and the National Warm Air Heating Association is telling them about.

The NIAGARA is the kind of heating plant you'd put into your own home. It is modern in design and appearance. The heat it gives is clean, wholesome and properly humidified. Every day more dealers are finding that the new idea of selling *healthful heat* is bringing them more and better business than the old idea of selling just furnaces. Soon all dealers will realize this. And those handling the NIAGARA will get the bulk of the business in their territory because the NIAGARA is an exceptionally good warm-air heating system. These dealers will make a better profit, too, because the assembly of a NIAGARA Furnace is simply a matter of putting together a minimum number of perfectly fitting parts.



*It will pay you handsomely to handle the NIAGARA.
Why not write us for full details at once?*

THE FOREST CITY WALWORTH RUN FOUNDRIES CO.

Member National Warm Air Heating Association

2500 West 27th St., Cleveland, O.

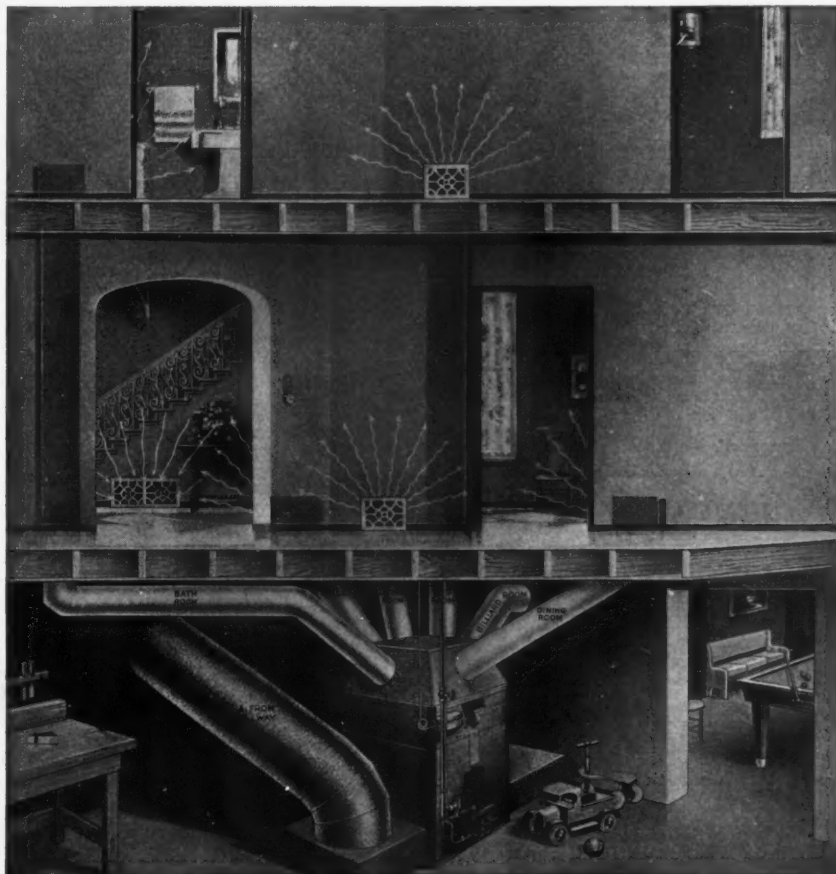
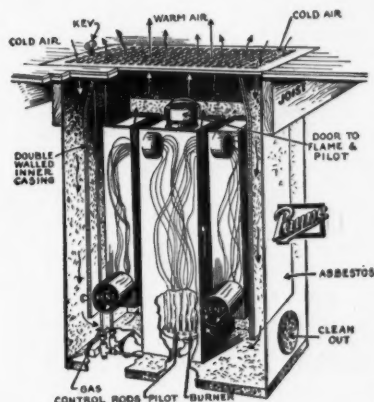
NIAGARA

WARM AIR HEATING SYSTEMS

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A NEW Gas-Fired Heating Plant for Old and New Homes...

As an auxiliary to the main heating plant in large dwellings, factories, auditoriums—or the main source of heat in cottages, offices, stores, banks, hospitals, clubs, flower shops, churches, schools and cafes—Payne Floor Furnaces have unlimited possibilities. Installed without heat pipes. No basement required. Constant and automatic air circulation supplies all the warmth required and, besides, keeps the air fresh, pure and healthful. Write for folder 217-B.



SAVE the old heat pipes! . . . Tear out the old oil, coal or wood burner! Install this new, modern, high-efficiency gas-fired heating system—for greater comfort, convenience and economy! In new homes, too, where heat is distributed from one source, Payne Central Furnaces afford marked economies in installation—give the highest standard of performance yet achieved—all at surprisingly low cost! Write for Bulletin 6-B giving full particulars.

PAYNE

GAS FURNACES



Dealers

The Payne Gas Furnace Franchise for your town may be open. Write today for new Catalog and Proposition!

PAYNE FURNACE & SUPPLY CO., Inc.
Beverly Hills, California

There is a "Payne Heat" System for Every Building and Climate!

Payne Heat

Factory Units
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Floor Furnaces
Central Furnaces
Pipeless Wall Units
Industrial Installations



A SAFE BET

RICHARDSON
"Essex" Warm Air Heater

We believe in and are members of The National Warm Air Heating Association.

A WINNER every time! The Richardson "Essex" Warm Air Heater is safe to install on any job. Its heating efficiency *will never be out of date*. This heater is one of the reasons why the healthful principle of warm air heat is *here to stay*.

This heater will be a trump card even with the toughest prospects. When you can't get 'em to make up their minds, or when they're undecided as to the type of heat they need, sell 'em this good old reliable. They can't go wrong in buying it—and with its long record of heating performances you can't go wrong in recommending it.

RICHARDSON & BOYNTON CO.

Heating and Cooking Apparatus Since 1837

260 Fifth Ave., New York

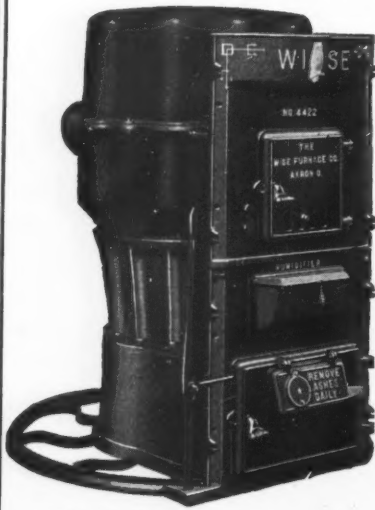
Utica, N. Y.

New York Utica Brooklyn Newark Port Chester Philadelphia Boston Chicago Buffalo Minneapolis Detroit Providence

Mention AMERICAN ARTISAN in your reply—Thank you!

all your purchases from one source

WISE FURNACES



THE Wise Open Dome 40 Series with Self Cleaning Radiator is even better than ever with its new One-Piece heavy Cellular Firepot and new Elbow Shaped Collar on inside of radiator which is turned up so that all the heat must follow the castings to the top before entering the flue.

BELOW is shown the New Wise Steel Furnace. A Wise product and a steel furnace having exclusive Wise features. Notice the Cast Iron Soot Box and Clean-Out on bottom of Radiator—the weak spot of steel furnaces eliminated.



Write for catalog No. 23



THE Wise 20 Series Return Flue Radiator has a new Patented radiator. Now cleaning the radiator is easy. The feed chamber and the radiator are designed so that the fire flues are easily gotten at from the upper feed door with the soot falling directly into the firepot. Also equipped with the new Cellular Firepot.

The WISE FURNACE COMPANY, Akron, Ohio

SMOKELESS...SOOTLESS

the

Original

FLORENCE HOT BLAST

Consumes all the
gases and soot



THIS furnace can be controlled entirely by the Hot Blast regulator because it regulates the draft flow under and over the fire—an important exclusive feature.

A finer furnace for better profits

FOLKS want to get all the heat possible out of the fuel they burn. With the Florence they have more economical and cleaner heating using the cheapest grade of coal. You sell the Florence easier and make a larger profit—get the full details today.

Made by the makers of the famous Florence Hot Blast Heater, Supreme Florence Circulator and Florence Cook Stoves and Ranges.

C. EMRICH CO. (Since 1861) COLUMBUS, OHIO

-----Mail this Coupon Today-----

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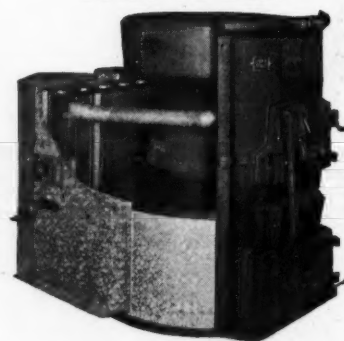
Send me your catalog and prices of Florence furnaces.

Name
Street and Number
City State..... A.A. 3-1

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MUNKEL GAS ATTACHMENT
Burns Gas Economically

BUILT TO LAST

Create
New
Business



Make
Profits
in the
Off
Season

FITS ANY COAL FURNACE

Install a Real Gas Unit to That
Coal Furnace

We Heat Both Units When Burning Gas.
Long Fire Travel and a Large Radiating Surface.

Write for Circular and Prices

Shipped Complete Ready for Installation.

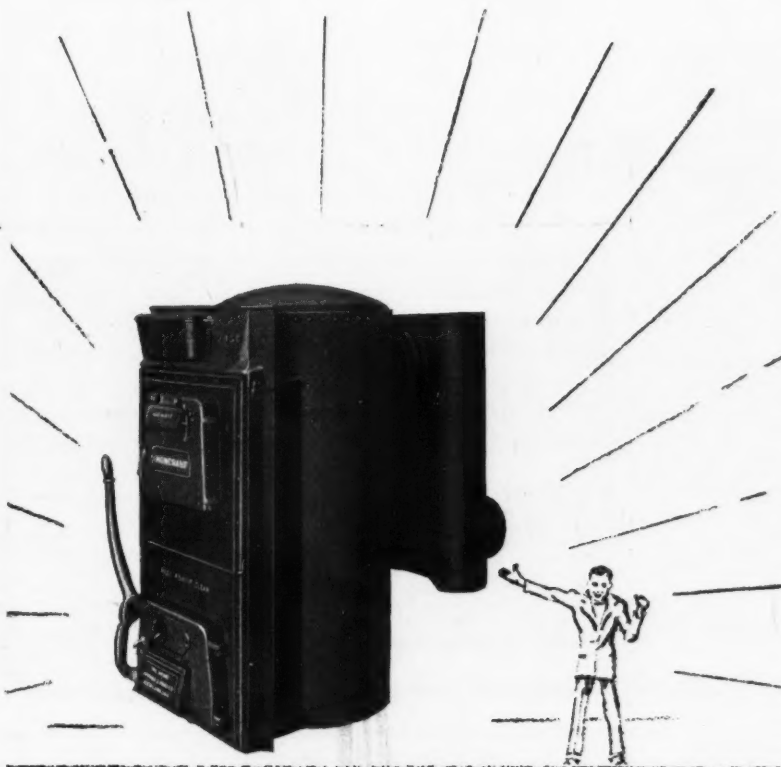
THE MUNKEL-RIPPEL HEATING CO.

"31 Years of Service"

COLUMBUS, OHIO

Mention AMERICAN ARTISAN in your reply—Thank you!

Dealers—There's Money In It for You



SOME people want a steel furnace. All right, sell it to them, and let it be of the latest design, most solidly constructed, of the heaviest materials. The new Moncrief Steel Furnace is all these things, and then some. Better look into it. There's money, more sales, better business in it for you.

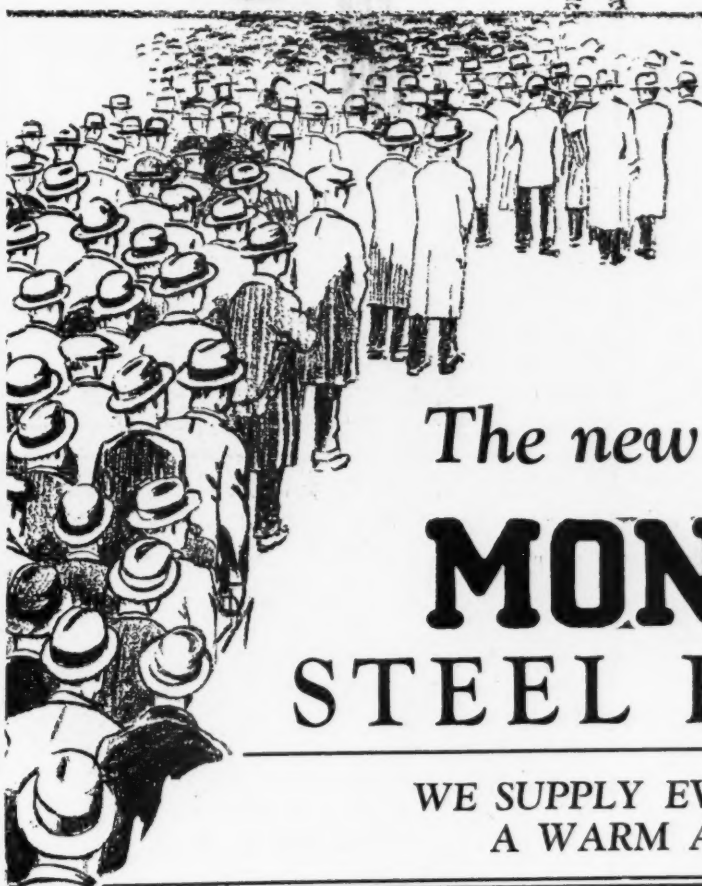
Write today for all the particulars.

**The Henry Furnace
& Foundry Co.**

3471 E. 49th St. Cleveland, Ohio

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The Henry Furnace & Foundry Co., Pittsburgh, Pa.
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Eastern Office
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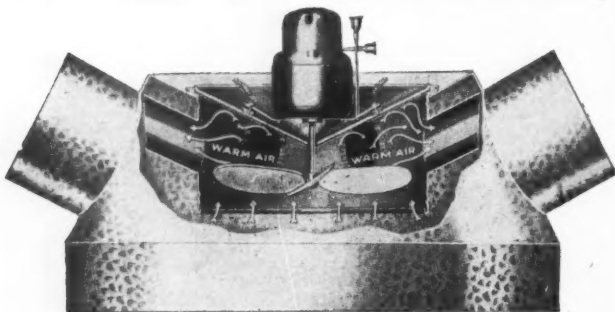


The new
MONCRIEF
STEEL FURNACE

WE SUPPLY EVERYTHING USED ON
A WARM AIR HEATING JOB

Mention AMERICAN ARTISAN in your reply—Thank you!

It peps up furnace sales as well as air delivery



ROBINSON Heat Distributor

WARM air heating like everything else now-a-days has to be sold but this fact makes it possible for you to sell *better* installations and to make better profits.

Warm Air Heating is the ideal form of heating in every respect but you have to *show* folks why.

The Robinson Heat Distributor will help you convince prospects that air movement can be positive—that quick heating and even distribution of warm air to all rooms is easy to obtain with warm air heating.

Put a Robinson Heat Distributor in your window now.

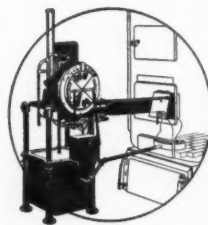
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Manufactured by

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McILVAINE OIL BURNER

Listed by Underwriters

Adaptable to warm-air furnaces because the McILVAINE System of **continuous flame** insures no cracking or burning of fire pots, but produces **even, dependable heat.**

Not an Intermittent Burner

DEALERS: Write for information today.

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GRILLES & REGISTERS

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Nashua, N. H.

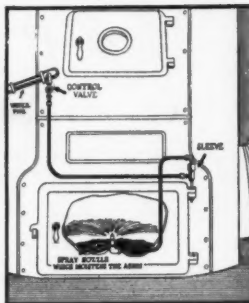


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Plants at Cleveland and Kent, Ohio; Chicago and Birmingham

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MAKE a hit with your customers—include this patented feature on every new installation—costs little but makes the job of removing ashes a clean, easy task. It prevents dust from spreading throughout the home—saves grates and fuel.

Fine nozzle spray settles the dust. A turn of the control valve before shaking or removing ashes does the trick. High quality throughout—easily attached.

Get full details and prices today—make extra profits this season.

DUSTLESS ASH COMPANY
MUSKEGON, MICHIGAN

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BALL BEARING DUPLEX GRATE

THIS newly designed and highly improved grate will be furnished on all Peerless Boiler Plate Furnaces.

It is also designed to be interchangeable with the rocker grate used on all 5400 series Peerless Furnaces making it possible for you to give your customers the option of either type grate.

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Warehouse Distributors at Pittsburgh, Pa.

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Warehouse at
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"Old Wine in New Bottles"

LONDON BOILER PLATE Quality Plus FURNACES



ARE COLD RIVETED AND
WELDED SMOKE, GAS AND
FUME TIGHT.

ARE EQUIPPED WITH EITHER
DUPLEX BASKET DUMP, TRI-
ANGULAR OR DRAW-CENTER.

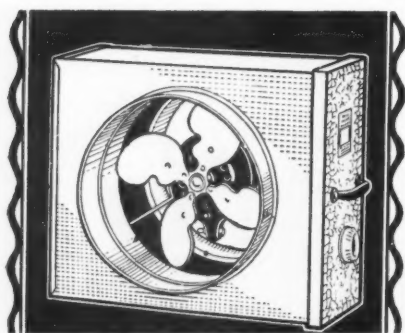
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FOR
SOFT OR HARD COAL,
COKE OR OIL

*"Feather Your Nest"—
Write Today for Proposition*

The London Furnace Co. LONDON, O.

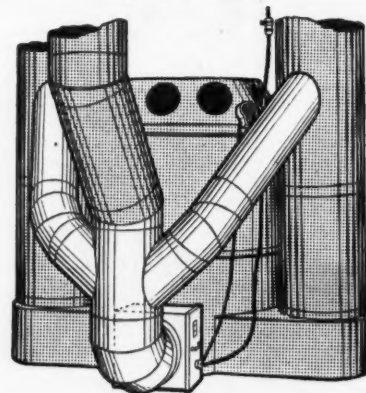
THOS. W. PEARSON—Sales Manager



Write for full details and names of nearest jobber.

A-C *Thermostatically Controlled* Automatic HEAT BOOSTER

THE silent, efficient and economical furnace fan. The A-C is *different and better* and therefore popular with the trade. Let us tell you how the A-C increases sales and profits in warm air heating. Ask for our installation instructions. The A-C has no louvers—does not interfere with gravity operation, and is *completely automatic*.



A-C MANUFACTURING CO., 417 Sherman St., Pontiac, Ill.

A
New
Furnace
Paste

**LARCO
MINERAL
PASTE**

Non-Cereal
Non-Souring
Keeps after
Mixed

For Better, Neater, Quicker Work

Asbestos Paper does not absorb as much Larco Mineral Paste as it does cereal pastes. Paper does not become soggy—not so apt to tear.

Larco Mineral Paste does not turn brown—no stains—mice will not touch it either when moist or dry and it does not gum up the hands.

Larco Paste can be kept on hand mixed ready for use as it does not sour. It has greater covering qualities. It slips easily but adheres permanently.

Write for circular which tells all about it—get Larco prices.

LARSEN-BENNETT CO.
OMAHA, NEBR.

“American Seal” FURNACE CEMENT

*Roof Cement — Stove Putty
Plumbers Putty*

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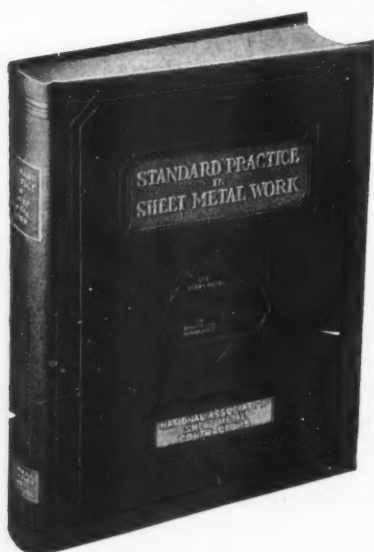
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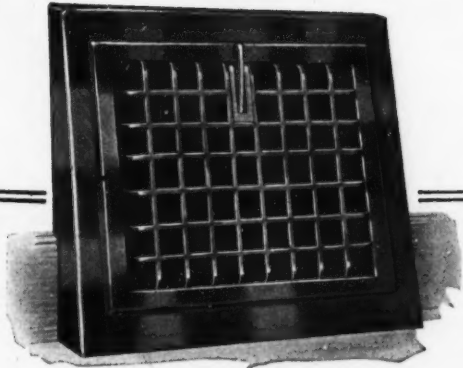
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Designed to conform with the Standard Code so they fit all standard boxes.

Auer Patented mechanical features make it perfect in operation,—quick and easy to install.

Auer's Save Hours and Dollars

The AUER REGISTER CO.
Cleveland, Ohio

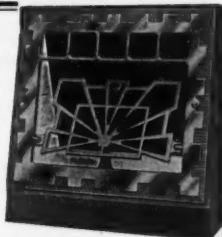
**INDEPENDENT
REGISTERS --
VENTILATORS -- GRILLES**
"Fabrikated"
COLD AIR FACES

Any Size Any Finish
INDEPENDENT REGISTER & MFG. CO.
3747 EAST 93rd STREET CLEVELAND, OHIO

SEND FOR NEW CATALOGUE

REGISTERS

are mighty necessary and important warm air heating equipment—therefore you should carefully select the registers you use.



Let us tell you more about

SYMONDS REGISTERS

"DIFFERENT THAN ALL THE REST"

SYMONDS REGISTER COMPANY
3117-23 Minnesota Ave. St. Louis, Mo.

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No. 3

No. 3 regulator is only 3" wide (especially designed for narrow casings) but has 5" chain travel. Also made in 3 3/4" diameter with 6" chain travel (No. 5).

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All the leading styles of chain and pulleys used by the furnace trade are carried in stock at factory for immediate shipment.



No. 00



No. 10



No. 11



No. 18

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Standard Regulator Sets complete with chain, pulleys, etc., are carried in stock. Send for "B" catalog giving specifications on all stock sets and also describing our line of Warm Air Dampers, Damper Clips, Awning Pulleys, Etc.

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SUCCESSORS TO FEDERAL MFG. CO.

Chicago, Ill.
61 W. Kinzie St.

New Britain, Conn.
Corbin Ave.

Factory at Holland, Mich.

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Founded 1880

American Artisan

THE WARM AIR HEATING
AND SHEET METAL JOURNAL

Published EVERY OTHER SATURDAY—to Promote Better Warm Air Heating and Sheet Metal Work

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At the right you see the Premier Mounting Department where Polly is foreman. Note the new 1930 Premiers being mounted. Left to right you see: Arch Kays, Walter Bailey, Lawrence Pollefeyt, Edward Gordon, John Springsteen, Floyd Dunkelberger and Cleo Northrup.



What I Think of Premier—

By LAWRENCE POLLEFEYT

Foreman, Mounting Department
Premier Warm Air Heater Co.

THE other day one of the men from the office came out here and said, "Polly, we want you to write an ad for the American Artisan. Tell them what you think of Premier." He kept insisting that I do it and finally I gave in altho I don't know a thing about writing an ad. So here goes.

I have been foreman of the Mounting Department ever since the Company was started and I have seen a good many thousand furnaces go through here. Our job is to set up the furnaces and see that they are fitted up right. We put a serial number on each casting of a furnace so that those castings will be kept together and to be sure that the dealer and customer gets a furnace that is fitted right and tight all over.

I don't know much else about what a Premier Dealer gets, but I do know he gets one swell furnace. I have been helping make furnaces for the last 30

years and I know Premiers are O. K. from radiator to ashpit. For example, all Premier castings are made of new pig or virgin iron. No scrap is used.

Just lately the new 1930 Premiers have been going through. They are about the prettiest looking job I have ever laid eyes on. What I think about Premier is that it is a real Company to work for and every man out here in the factory is mighty proud of the furnace he helps to make.

Sometime when you are in Dowagiac, come out here in the Mounting Department. It certainly will be a pleasure to show you just how much pains we take in mounting a Premier furnace.

Polly

PREMIER WARM AIR HEATER CO.
DOWAGIAC, MICH.

HERE'S A FURNACE YOU CAN SELL!

SURE! This industry accepted the Midland EL CAPITAN furnace as the furnace of TOMORROW. Dealers everywhere have found this, "America's most beautiful furnace," the profitable furnace to SELL, the furnace which gives consumer SATISFACTION, the furnace which makes for them a better PROFIT. The EL CAPITAN has proven itself and is the accepted furnace. Sell the EL CAPITAN for a better profit and more satisfied customers.

The plans for 1930 are new and different. Midland offers a dealer more than ever before. The exclusive franchise for EL CAPITAN distribution will bring you better profits. Write today for full particulars.

MIDLAND FURNACE Co.
COLUMBUS, OHIO



The EL CAPITAN,
"America's most beautiful
Furnace," Steel
Riveted and Calked.



**ONE OF MIDLAND'S
CLEANER HEAT
SERIES!**

MIDLAND

STEEL
RIVETED and CALKED
IS BEST

FURNACES



American Artisan

THE WARM AIR HEATING
AND SHEET METAL JOURNAL



Vol. 99

CHICAGO, MARCH 1, 1930

No. 5

Our Future

SO FAR this year we have attended three annual conventions. We have had some others reported and still have some to attend. As we have sat in the audience of these meetings it has been impressed on us that one of the favorite topics for discussion is "Our Future."

Some of the speakers have stuck pretty close to the line and given us some real ideas to think about. Some others have rather strayed from the path and fondled generalities.

But there has been enough to make us think—"Well, what is to be the future?"

Some of us really believe that it will be bright and prosperous. Others are trying awfully hard to think that way. Others are frankly pessimistic.

The truth, probably, is—they are all right.

But just for the time being we would like to put down a few things which have come to our attention. Especially in the heating field. The trend today is without doubt toward equipment which requires absolutely no effort. Folks don't even want to go down to see if the thing is going. As a matter of fact they are going to be so lazy that they won't want to be bothered by someone wanting to read the meter or asking where the connection for the oil tank is.

Our belief in the future jumps even this.

We believe that the time is not far off when heating a home will be a service just the same as the light, the gas, the water is. Probably we will have a piece of equipment in the basement, but at the most all we will have to do is turn it on in the fall and off in the spring.

It may be gas, it may be oil, it may be electricity, it may be water, but we feel sure that it will be automatic.

And just as certain are we that the medium which will heat the rooms is going to be warmed air, not air warmed over a radiator and moved up to the ceiling, but air cleaned, humidified, warmed and started moving in our basements and introduced into our houses in such a way that every part of the room, the floor, the breathing level, the ceiling will have a supply of uniform good air.

Some of the heating contractors seem to feel that this time is far into the future. We don't think so.

The equipment is already on the market. The knowledge is even now stored in the brains of our leaders. All in the world we need is the fuel. Oil

is now being brought to our front door. Coal as we now know it will undoubtedly pass out shortly. Gas either from coal or from wells is right now at the doors of a large part of the country. The cost will come down. We don't want to work. We are going to see automatic heating and we had better be prepared.

Here's One for Your Book of Experiences

IN THE state of Indiana a lot of work has been done by furnace dealers and manufacturers toward getting the standard code introduced and accepted by cities. As a result of this labor two cities have established the standard code. The first city to adopt the code was Ft. Wayne.

But this is not the story. In Ft. Wayne more than 1,000 warm air furnaces are sold and installed every year. That is quite a business. That every installation is put in according to code is responsible for the popularity of the furnace in the city.

Well, one of the men most responsible for the establishment of the code is Frank DeWeese. When the code was put into effect he was appointed furnace inspector for the city. Believing in the benefits awaiting proper enforcement of the code, Frank gave up a lucrative business to devote his whole time to the new work.

For two years he inspected every furnace installation. Even his enemies admit that every one of those furnaces went in according to code. That has been a valuable work. It has meant the establishment of a confidence which makes the warm air furnace respected and believed in.

And now after two years' work political influences in Ft. Wayne have decided that this job should go to someone who can add to the political tree and not be merely a good inspector.

So Frank is out. His place is now filled by a political appointee who in regular life is a steeplejack. What the new man knows about furnaces is problematical—but what he knows about the standard code we leave to your imagination.

The whole point to this story is that furnace dealers and manufacturers cannot rest content with the establishment of a good code. They must be continually alert to prevent their good work being torn down, as was the case in this instance. Putting in a good code and living up to it is only half of the battle. The other half is seeing that their work is not destroyed by politicians on the watch for plums for the political tree.

HOW SHALL I PRICE MY ESTIMATES?

THE problem of making a profit is always staring the sheet metal and furnace man straight in the eye. Some of us try to avoid the issue by looking elsewhere. Others have found that taking the bull by the horns and learning the bad news as quickly as possible is the only way to avoid the troubles which follow those who sidestep the issue.

To be successful we have to make a profit. How shall this profit be figured? Is there a basis by which we can sit down and calmly judge whether or not our business is successful, or in other words, profitable.

There is such a basis. To give it let us take an illustration. A young man recently wrote us that he was going to run his business with open eyes. He wanted to know the why's and wherefore's. His letter is reproduced below. In answering him we submitted his problem to J. C. Dingle, who is an authority on book-keeping, cost accounting, and the mathematical end of the sheet metal and furnace business. His reply to the letter forms this article.

The AMERICAN ARTISAN,
139 N. Clark St.,
Chicago, Ill.

Gentlemen:

In reading through your January 18th issue of the AMERICAN ARTISAN the problem of how to charge overhead interests me. At present my dad is running the business—and how! I had the occasion, Dad being sick for some time, to look over the books (if I might call them that) that were kept and found he is losing money. On a close tabulation I find about \$10,000 worth of work done for the year

1929, all bills being paid by checks for materials. The stubs show a total of \$2,205 for 1929.

I intend to take over business sooner or later, and taking records from last year as close as can be had, I find overhead amounts to \$1,850.

This does not include salary for managing business. I intend to work at the trade most of the time, and decided wife and I can take care of books, etc. An approximate figure for this would amount to \$360 a year. I expect to hire another man and helper besides myself, and more if necessary, and pay the wage of \$1.25 an hour for man and 65 cents for helper. Of course I expect the same wages plus profits.

In going over the books I find the amount of \$5,675 was paid for productive labor in 1929. So you see Dad was satisfied to take what was left at the end of week for his salary.

I would appreciate it very much if you could help me figure this out on the basis of charge per on \$1 of material and per cent charge on labor per hour. Profits I intend to make 15 per cent if possible.

Thanking you in advance for your good help,

AN AMERICAN ARTISAN READER.
P. S.—Figure on a \$10,000 a year basis.

THERE is no subject so vital to the sheet metal worker as the pricing of his work, and yet the question is still clouded with mystery. Why? I would say because out of the many shops there are so few whose records can be used to develop reliable data concerning this particular industry.

Letters are received from readers of the AMERICAN ARTISAN asking for the solution of specific problems. Almost without exception these letters picture a business where the proprietor wants to apply a standard rule to his business to see what is wrong with it—where the leaks are and how to stop them. Unfortunately, so far as I know, there is not available for the sheet metal shop owner authoritative figures which can be used as a general rule.

In many industries, through concerted efforts on the part of sincere individuals, after hard long fights, there has been prepared, adopted, and put into use in a large number of individual businesses a plan of accounting. Through the use of such standard accounting plan these separate businesses compile comparative operating figures. Thus from these records can be produced statements showing what may be considered as average operations. And by applying these average figures as the rule, the individual can judge the efficiency or inefficiency of his own business.

One interesting letter received outlines a proposition something like this:

Sales	\$10,000
Material cost	\$2,205
Direct labor cost	5,675
Overhead cost	1,850
	<hr/>
Total cost	9,730

Profit, out of which the proprietor is to receive his own salary and a return on his investment..... \$270

This man says that he has realized that he has been in the position of working for his customers for

nothing. His profit of \$270 will allow him a salary of \$32.50 per month. He asks if we can help him figure out a scheme or plan whereby he adds a certain percentage to his material cost and another percentage to the labor hour.

Please note that the figures above show the dollar cost of material, also the dollars paid for labor, but no mention of the number of hours the \$5,675 paid for. And again, this shop owner says nothing about the idle (or unsalable) time of his workmen. Without this information the problem cannot be solved for this man. He, then, is at sea as to just why he had only \$270 for salary and profit for the year. We can all admit that \$270 is too small a margin on \$10,000 of sales, even if its cost included proprietor's salary.

We can say to this man, and his fellow sufferers, that if, after making his estimate of material and direct labor costs, he wishes to make a profit of 15 per cent, he may proceed somewhat as follows:

Determine as near as possible his annual overhead (or indirect) costs. Determine as near as possible the volume of business he may reasonably expect to do during the year. Be a pessimist and make your expenses a little larger, and estimate your sales as being a little less. Divide your estimated expenses by your estimated sales and thus determine the percentage of overhead to sales. For instance, if your estimate of sales amounts to \$10,000 and overhead is \$1,800, then, to take care of your overhead, each sales dollar must carry 18 cents of overhead expense. Let us say that this shop owner works at the trade and that at least one-half of his time will be chargeable as productive labor and the other half will be charged as overhead or indirect expense. Having taken care of his salary in productive labor and overhead expense, he has only to add as profit a fair return on his investment. Let's assume this to be \$1,500 or 15 per cent on the \$10,000 of sales.

We are now ready to price a job. The furnace and other materials

cost, say \$50, and the estimated labor to install amounts to \$100. This far, you are at home. You know your materials and the time required by your men to install an average furnace. Then, if overhead requires 18 per cent of sales price and profit is 15 per cent of sales, there is but 67 per cent left (100 per cent minus 18 per cent for overhead minus 15 per cent for profit) for material and labor. If these two elements amount to \$150, by dividing this \$150 by the percentage—67 per cent—we find the selling price must be \$223.88. To prove our calculations you will have to stand behind your estimate for material and productive labor—we have:

Material	\$50.00
Overhead (18% of \$223.88)	40.30
Labor	100.00
Profit (15% of \$223.88)...	33.58
<hr/>	
Sold for	\$223.88

This computation checks out to the penny, but will this job click so nicely? You may rest assured it will NOT. The chances are about one in a million that it will finish out this way. Suppose your man, at \$1.25 per hour, requires two hours more than you estimated. Where does that \$2.50 come from? It most assuredly doesn't reduce your material costs; but on the other hand, may require more material than you estimated. It will not cause your overhead to grow smaller—if anything, it will increase overhead. So your chances are that if labor costs \$2.50 more than you estimated, material and overhead will also increase, and these increases can come out of but one pocket—yours. The customer pays you the \$223.88. Your materials cost \$52, your labor cost \$102.50, and by simple arithmetic we find your cost to have been \$194.80, leaving your profit not \$33.58, but \$29.08. The \$33.58 profit has been reduced by the extra labor. Where you figured on 15 per cent you actually receive 12.9 per cent due to failure of your estimates to work out true to your prediction.

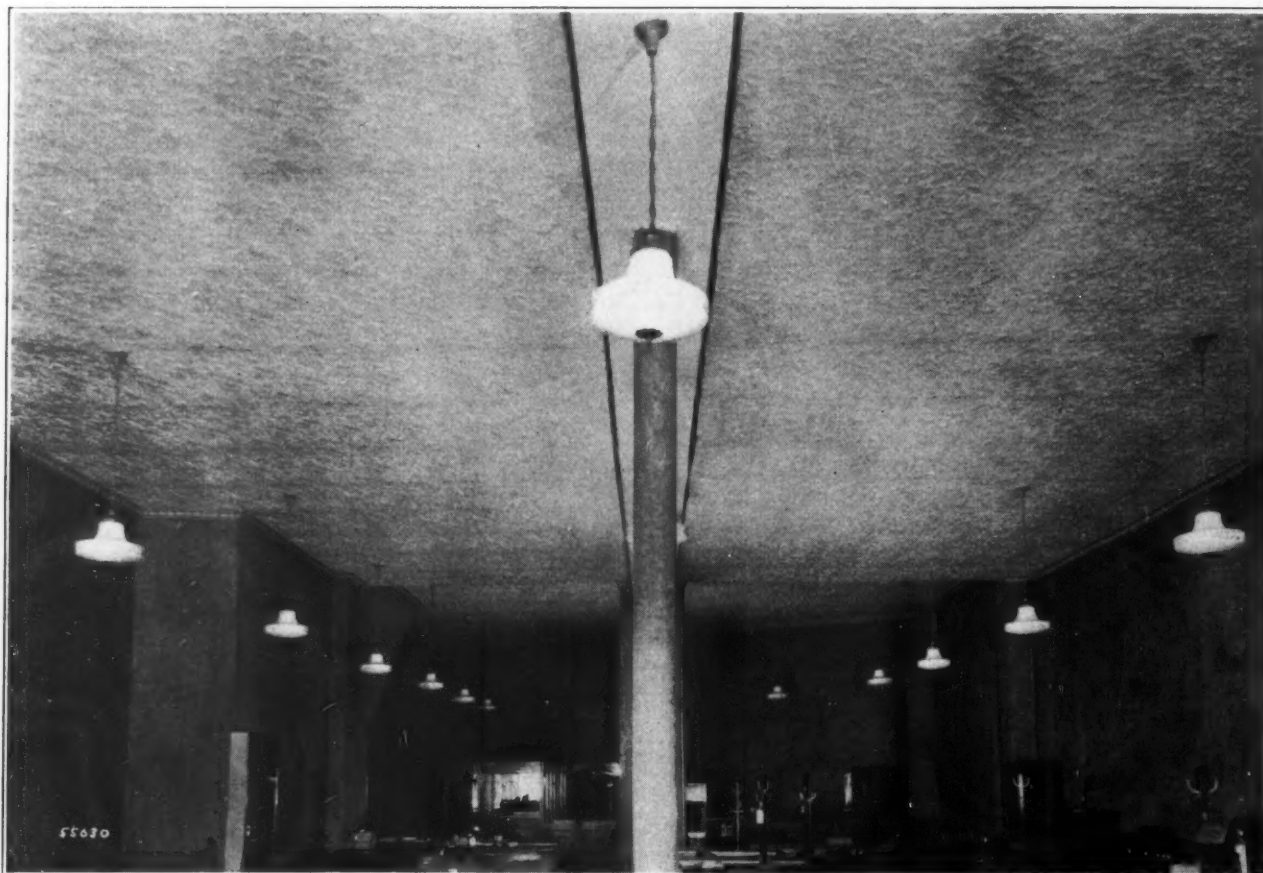
This brings up another question.

You know your estimates are only ESTIMATES. You know that if your estimates are to be made more accurate in the future you must have some means of determining their accuracy at the present. One man works faster than another. A thousand and one things affect your predictions. It behooves you, then, to build up your actual costs for these jobs, and upon completion of the work you can check your accuracy in estimating your labor and your materials. In this way alone can you know your actual costs for the work. By careful study of actual results in material and production labor and comparison with your estimates of their costs you can correct your figures and let future customers pay for those extra hours which will be spent on their work.

And now comes the biggest part of the whole matter. If your book-keeping is so designed that throughout the year you have built up your operating costs according to a standard plan, you can, at the end of the year, put your year's work together and ascertain accurately what your sales amounted to, what the different elements of the cost of sales were, and from these figures you plan your future operations. From past performances does the business man build his future. His thorough understanding of past performances enables him to more accurately chart his future.

To that sheet metal man whose questions prompted this article, and to business men generally, I would say that we know it takes gasoline to make our cars go. There is no question about that. But until we put the gasoline in the tank and drive the car, we can only ESTIMATE how far it will go on a given quantity of gasoline. If our car consumes one gallon of gasoline for 15 miles of travel, we do not put in one gallon for each 15 miles we expect to do. We put in ample for emergencies—for unexpected side trips. We want to know at all times that we have a supply of gasoline. Just as we carry extra gasoline with us on that trip.

(Continued on page 44)



Look for Store Remodelings— They're Ripe Fields for a Metal Ceiling

TO many sheet metal contractors and to probably 85 per cent of our business men, a sheet metal ceiling in an up-to-date store is just about as useful as a rubber collar. And like the rubber collar, the metal ceiling is the last thing a present day business man wants.

Provided—he isn't sold on modern metal ceilings.

That's where the trick of the business of selling metal comes in. No present day storekeeper and not many sheet metal men want ceilings which imitate hand carved wood or intricate terra cotta, but that same business man can be made to listen

to your sales story if you have something modern to sell him.

Let's illustrate the point by citing a job just completed down in Indianapolis. On one of the downtown streets an office furniture company made up their minds that they were going to redecorate their show room. They looked around at other new stores. On every hand they saw stores done over in Italian, Spanish, Colonial, English style. It seemed as though every business house was trying to create an architectural impression of their store on every customers' memory. To do this they were remodeling their store interiors and using real archi-

tectural guidance in the work.

And the investigators were assured that the scheme really worked.

So the Business Furniture Company decided that their new store should be right in step with the times. Decorators were consulted. Plans and designs were looked over and taken home nights for more study.

Because the store was deep and had windows only in the front a decorative plan which would reflect light, be bright and cheerful was selected. Of the many architectural periods, the Spanish style appealed most to the company officials. So bright colored, yellowish buff walls

Metal ceilings have not gone out of style. In fact, in their modern dress they are very much in demand. The picture opposite shows how a textured metal ceiling can be made to carry out the architectural scheme of modern store buildings.

were selected. This color was incorporated in a textured finish manipulated to correspond to the textures common in Spain or Mexico.

About this time—right in the midst of all the planning and discussion, the Standard Metal Company needed some new furniture. One of the executives visited the Business Furniture Company to look over their stock. He fell right into the middle of their planning and just at the time the furniture company officials were scratching their heads trying to figure out a not-so-expensive way to get a new ceiling.

The Standard company got on the job. They let their contractor friends know about the job and suggested period ceilings. The rest of the sale was just made to order.

The old ceiling was badly cracked. In spots the plaster was falling down. To replaster would be expensive, but still more important would necessitate practically closing the store while the old plaster came down and the new went on.

The furniture company officials were taken around town and shown Spanish style metal ceilings. Installation ease was explained, lower cost was driven home and the fact that the metal could go up without interfering in the least with business was pointed out.

These sales arguments won the battle. Metal ceiling of Spanish texture as made by the Milwaukee Corrugating Company was specified. The job was won by the Clifton Tin Shop of which Otis Moody is the owner.

The old plaster was not touched.

Soundings showed how the joists of the second floor ran. As the store is considerably deeper than it is wide the sheets were put on with the long dimension running the long way of the store. These sheets are 2 feet by 4 feet in size and are pressed into a Spanish texture.

About 50 squares of new metal was required and excepting for a row of columns and depressed girder down the center of the store no cutting to speak of was needed. The sheets were lapped approximately $\frac{1}{2}$ inch and the lap was not beaded.

After the metal was on the sheets were painted white with a good grade paint. This gives a ceiling lighter than the walls and provides a light reflecting surface of first quality.

A feature of the job was the speed and lack of muss or inconvenience to business. Scaffolding was erected over an area of the sales floor and a completed ceiling put on. The scaffolding was then moved and another area finished. The entire job was completed in a little more than three days' time.

Looking Mighty Black

Geo. W. Banker, Wilmington, Ill., thinks that conditions in the furnace industry have their funny side and that our readers appreciate reading about other fellows' troubles, so he sent us the following clipping:

I have your statement showing that I owe you \$769.80 and I am enclosing a check for \$5, for which please send me a receipt.

I am sorry I cannot pay you any more at the present time, as I am unable to collect from my customers, as money is so scarce right now. My own living expenses are terrible, and with my store and my farm I can hardly get along. I will try and send you another payment of \$5 when I sell my hay, which should be in June. I cannot pay you more at that time for my daughter finishes at Bristol this year and that costs a heap of money.

I thought I could send you some money when I got my rent check, but it took all I could rake and scrape to put in Delco lights, as my wife did not have electricity to run the frigidaire, the sewing machine and the vacuum cleaner. Then, too, we had to build a shed for the Ford so we could put the new Cadillac in the garage, and build a concrete bridge so we could get in and out.

I can't send you the money in the

fall because my son is going to college, and although the lads of today are very economical about hats and garters, still a coonskin coat cost the old man a lot, and even junkyard Fords come rather high by the time they are decorated for college.

I might send you the hog money but the missus and I have planned a trip to Niagara in the fall, and after her working hard all these years I think she deserves the trip. We can't go before fall for she is having the house redecorated and refurnished, taking out the red plush and putting in overstuffed cane and mahogany. This is a terrible strain on my finances, especially as the new well that we need closer to the house and the barn have to be paid for.

Most of us here are in a hard place financially with strawberries at this season 75 cents a quart and the price of gasoline as it is. Then, too, there is an epidemic among the married women to have their gold wedding rings platinumized and set with diamonds, and everybody is having their tonsils and teeth removed.

Maybe by next year things will look brighter and I can pay you what I owe you, but right now things look mighty black to us farmers and business men.

A Gas Installation

USING gas heating as a lever to enter the field of high-priced residential or apartment house heating is not a new thing. But every such installation makes it just that much easier for warm air furnace men to get into this profitable field.

Installations are not as frequent

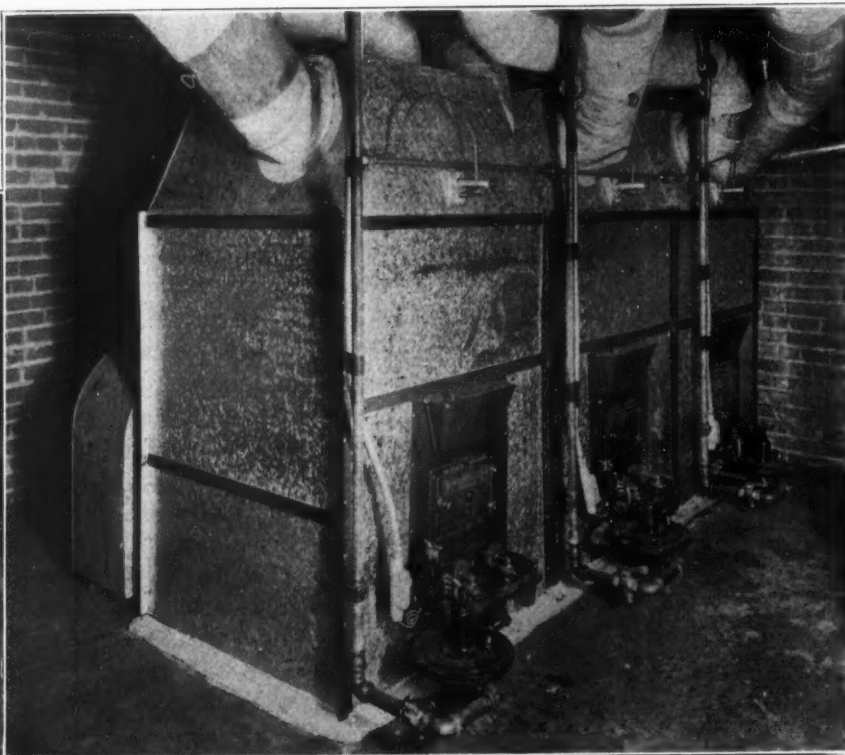
as might be wished and so each new one deserves publicity. Shown on these two pages are photographs of an installation which deserves a great deal of credit for its appearance, but even more credit because of its pioneering.

The illustrations show an installation of six Robinson FORC-AIR

gas furnaces in a six-suite apartment in Cleveland, Ohio. While the photographs only show three furnaces, there is another set-up just like it on the other side of the basement.

Each of these furnaces operates separately, each one heating one apartment. There are, of course,

At the right is a battery of three gas fired furnaces. Another battery of three furnaces is on the other side of the partition wall.



Each of the apartments has its own gas fired furnace. The leads, as shown below, are long. Warmed air is forced into the apartment by the heat distributors built into the hood. Isn't this a splendid example of what can be sold if only the right methods are applied?

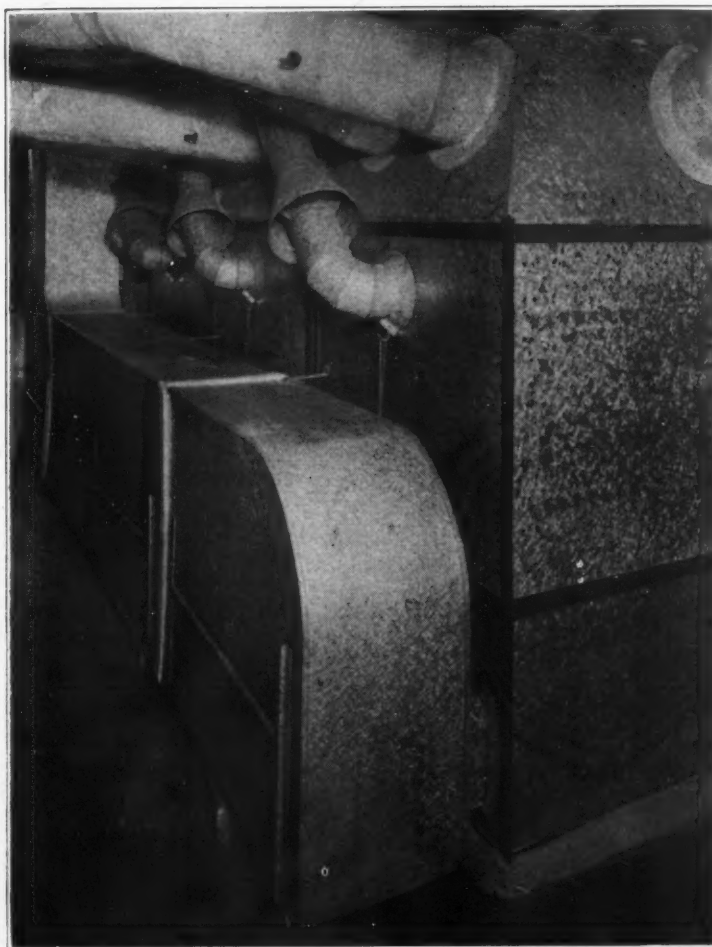
six meters and each tenant is, therefore, paying for his own heat only.

These gas furnaces are equipped with Robinson Heat Distributors built into the hood. These fans start automatically with the gas supply,

DeLuxe

which is controlled by a Minneapolis Thermostat and Motor Valve. All of the heat generated in these furnaces is immediately driven through the warm air pipes to the rooms to be heated. This, of course, means economy, since there is no wasted heat in the basement. In fact, it is possible at any time to lay one's hand any place on the furnace casing.

Each of the three warm air pipes shown in one of the photographs is over forty feet in length. Each of these apartments has been heated comfortably and economically during the present winter. The owner states that they have never been comfortably heated before. The only servicing required on these furnaces is turning the two grease cups on each motor about once a month.



Your FUTURE BUSINESS

*By D. M. Strickland
American Rolling Mill Co.*

Your present day business can never be a future business unless it is properly organized and managed and extends the public a real service. Read this speech for it contains some fundamental business rules.

ANY PRESENT DAY business will not have a chance to become a "future business" unless it is properly organized, managed, and extends to the public a profitable service. This is true of your business and it is true of my business.

Armco is a large corporate business, over 11,000 persons making up its personnel. It manufactures over a million tons of pure iron and other specialties each year. On the other hand, your business is smaller in financial investment and your service is a different service. However, whether the business is large or small, the same basic principles must be followed if constructive growth and future profits are to be a reality.

We are all in business to make money. We do this by buying something, doing something with what we have bought, and selling what we have done. Profits can accrue from these three functions providing we buy right, we do right, and we sell right.

Illustrating: Buying right for the

sheet metal contractor means the choice of tools, sheet metal, business locations, schooling and other requirements at a price commensurate with quality, and quality is the key-stone of continued business success. At Armco it means the purchase of melting stock, pig iron and other raw material which experience has shown are necessary for pure iron manufacture. Doing right with you is the establishment of proper construction standards, quality workmanship, careful design, and many other timely and necessary services. At Armco it means melting and purifying raw materials in gigantic furnaces, rolling the pure iron with massive machinery and processing the rust resisting sheets into proper gauge and finish. Selling right in both your business and mine is the ethical distribution of our goods and services at a fair profit to us and at an advantage to the buyer.

Such are three important divisions of business, and I am convinced that each of these phases should contribute its fair share of profit to the business enterprise. A business which slights the profits that should accrue from one or two of these phases and then expects the third phase to make up the deficit is not firmly and securely organized. Proper buying and proper doing should not be expected to absorb a loss due to poor selling, and neither should proper buying with proper selling be called upon to overcome continuous losses from inefficient doing.

Now, to these three phases I wish to add one more. This fourth one is unfortunately often overlooked

and is the cause for downfall of many businesses in which the owners have not given it proper consideration. The point I wish to emphasize is this: Buying right, doing right, and selling right must be done in such a manner today that they perpetuate themselves and thus make it possible for these three phases to continue to yield profits over long periods of time in the future.

For instance, let us consider the buying function. What may seem to be right buying today may in reality be jeopardizing our future business. We may buy so "completely right" that we take away the opportunity to buy profitably in the future. We may demand such great price concessions and credit concessions and other concessions that our business becomes unprofitable to those who serve us. Consequently, the next time we buy we may find it impossible to secure the same goods. The suppliers may have withdrawn from the market or may have of necessity sacrificed quality in the merchandise we formerly bought. We may find it impossible to secure the same well-made sheets, the same quality of coatings, the same desirable physical properties. As a result our future buying may be at a loss to our business rather than a profitable phase of our endeavor. We may still wish to do business with quality merchandise but find we have hurt our own business by eliminating from the market (due to sharp practices in present day buying), merchandise which we badly need to perpetuate a quality business in future years.

From the standpoint of "doing right," only the best we know how is good enough to properly safe-

guard our future business. Furthermore, we may be doing right today to the best of our knowledge. Nevertheless, it is perfectly obvious that our today's "best" will not be satisfactory five years from now. In our right doing today, therefore, what steps are we taking to be sure that when a five-year period rolls around we will still be doing right? Are we devoting a certain amount of time and effort to study in our own trade? Are we taking pains to keep up with all new developments pertaining to the proper execution of our services? Are we spending time and money to be sure that our "doing" in future years will be an improvement on the "doing" of today?

There is no business of consequence today (radio, iron making, medicine, sheet metal contracting) which is not doing things differently than it did five years ago. This is proof positive, therefore, that five years from now things will be done differently than they are at the present time. Hence, does our "best" of today include that necessary energy needed to perpetuate this "right doing" over future profitable years?

And, third: Are we selling for the future or are we selling for immediate present profit? Are we stealing our future selling profits by sharp practices of today? Are we taking orders for work at prices which we know cannot be maintained on a money making basis? If so, we are jeopardizing the profitability of our future business. Every sale that is made should produce a present day monetary return, and at the same time carry protection towards future business so that our activities of the future can likewise yield a fair return on our educational and dollar investments.

In thinking of our future business let us go through the mental process of organizing a business. Whether our business is large or small, there are many links which must be correlated. There is a purchasing link. There is the investment link. There is the equipment link. There is the link of research. And there are

other links. All of these represent vital parts of our business. Each link must have its full share of attention and be properly organized either as a department in the case of a big business or receive its full share of time if it is necessary that one man handle more than one ac-

Business whether it be big business or small business does only three things—You buy something; you do something with that which you bought; and you sell what you have done. To these three primary functions can be added just as much frill or detail, but the basic principles remain intact.

tivity. However, these various links can either be contributory supporters of the business as a whole or they can, if uncorrelated, pull in all directions. What they need in a well organized business is a link of management. All of the smaller links in the business must be securely fastened to the link of management, and the management link is the most important one in the entire development of our business. This is a fact which is not always completely appreciated. Indeed, it is obvious and true that the first responsibility of a manager is to manage—to correlate the various phases of his business. Each day that goes by should contain its full quota of time set aside for a study of management responsibilities. This means active thinking. It requires pioneer thinking to be a manager. It requires the type of mind which is looking ahead and constantly think-

ing sourcefully. A follower can never be a good manager. He must be managed by somebody else. In our profitable business of the future the management link is the most important of all.

Let us say, we now have a business organized with a sound management link at the top and under its direction several other smaller links. Up to this point in our planning we have been thinking in terms of OUR business. This is MY business. This is MY organization. These are MY finances. This is MY education.

We must now go a step farther. We must forget the "my" part of the business and think of the "customer" part. We must join our link of management and other links to the general public. Our business will not show a profit unless it affords a profitable service to the community in which it is placed. This makes no difference whether the community is a small one or a nation wide market. The principle is the same.

We must have a sales link. This may be a department of salesmen, a salesroom, or whatever facilities are customarily used when joining your business to the public. In principle, the actual function of selling (whether it is your merchandise or your service) is the same for all businesses. It is a task of interpretation. It is YOUR OWN responsibility to take your products and services and so translate them into your customer's terms that the buyer himself recognizes a real service is available which warrants his support with legitimate profit to the seller.

It is a responsibility of the selling link of your business to study the requirements of the public and to recognize that the public has the biggest of all influences on your business. This does not mean that you should not introduce new articles, new merchandise, new services. Quite the contrary. But it does mean that when you DO, you must be sure that at the proper time and place your own sales link is aggressively interpreting your serv-

ice to the public. This is a day of public enlightenment. Advertising pages and editorial columns are full of explanation: even of the most intimate nature. The day of secrecy with its misunderstandings and suspicions is past. Future businesses must fully interpret themselves to the public. Only then can the public recognize proper standards and be able to judge the value received for the money it spends.

We have now discussed our future business from the standpoint of three profitable phases: buying, doing and selling. We have organized our business with three principal divisions: management, departmental activities, and selling. However, no matter how carefully we may have considered these problems, it is self-evident that each individual business enterprise can never be any greater than the combined activities of all the members of the organization itself. The American Rolling Mill Company can never be any bigger than the sum total of the efforts of the people that make up its organization. The future business of John Doe, Sheet Metal Contractor, can never be any bigger than the combined efforts of the members of John Doe's organization. There are three kinds of people available for your business. There are pullers who are pulling the business forward in a profitable manner; there are riders who are simply floating along with the business; and there are laggards who are holding back the business enterprise. Your future business will be profitable when the aggregate effort of the pullers, riders, and retarders is in favor of progress.

Bearing this thought in mind, I want to speak, in conclusion, of interlinking managements. Think of your business with its management link at the top and geared to the public with a link of interpretive selling. Now the question before us is, "To what is our link of management connected?"

You will return from this convention and proceed with your future business. Some will thrive, some will exist, some will fail. But

whether you like it or not, every single individual engaged in the sheet metal contracting business will have an influence on the profits of your privately owned enterprise. You cannot divorce yourself from your business and yet remain in it. And just as it is in any industrial organization where its total accomplishment is the sum of the accomplishments of the men in its organization, so it is that national standing of your profession is the sum of the standards of the sheet metal contractor all over the United States of America. And here, as in industry, you will find there are pullers, riders and retarders.

This truism puts the question of the sheet metal contractor's future business directly in your own hands. Are you a retarder in your business? If not, what are you going to do with those who really are retarders? If your competitor is a poor element in the business, is it to your advantage to push him backward when the farther down you push him the worse it is for the pro-

fession as a whole? Isn't it true that whether such a competitor realizes it or not, or even appreciates it, the more you can do to help him become a puller, by that much you strengthen the profession of which you are a part?

And, after all, isn't this a challenge for merged effort to answer? What individual can carry forward such a vision as this alone? It will take all the pullers in the business, shoulder to shoulder, thinking sourcefully, propelling a program of research, establishing standards and performance, and safeguarding the ethics in your profession.

Join your link of management to the management links of the thousands of other members of this constructive association and your future business will be a stabilized profitable enterprise. It will be a constructive unit in the business as a whole. And the business itself will grow and maintain its growth because fundamentally it will be based on the greatest and best of all platforms—public service.

Some of You Readers Answer This Man

IN THE issue of the AMERICAN ARTISAN for February 15 we published the new rules laid down for the warm air furnace industry. We believe those regulations are good, and we also feel that if they are lived up to, a lot of the pains now cramping the warm air heating industry are going to be relieved. Of course, we know that some manufacturers are going to try and get around the law, but just let one violator get a good healthy fine tacked on him by the Federal government and some others will begin to think twice.

Evidently there are some pessimists in our industry—in fact, one such takes his pen in hand to give us both barrels. He writes:
Editor, AMERICAN ARTISAN.
Dear Sir:

I have read with interest your article in the February 15th issue on

the rules of business ethics as laid down by the Federal Trade Commission and I would like to know what the furnace dealers and installers think of it. From the manufacturer's standpoint it is of little value unless it enables them to get a better price for their goods, and that it has had any effect in stabilizing prices to date is very doubtful. All the beautiful phrases about adhering to printed schedules amount to little unless they all file their price sheets with the Federal commission and someone has the authority to check them up. I have been quoted prices this year on fittings all the way from 50 and 10 off the list to 70 off the list, but from a standpoint of quality the 50 and 10 discount was better than the 70 per cent discount. And how about Rule 15? This seeks to regulate
(Continued on page 44)



One of the last day's sessions

Many Valuable Papers Presented at Ohio Sheet Metal Convention

THE 1930 annual convention of the Ohio Sheet Metal Contractors' Association was without a doubt one of the most instructive and one of the most successful conventions that organization has held.

Entertainment of high order and splendid talent, coupled with papers delivered by excellent speakers using very timely and important subjects as their basis, gave those who attended many hours of valuable contacts and education.

To the officers and committees who were responsible for the programs great credit must be given. Not only were the subjects assigned for discussion well chosen, but the speakers were all men of such caliber that the subjects gained added importance through their presentation.

Tuesday's Program

The first day of the meeting was given over to registrations and organization of the entertainment and

meeting schedules. In the afternoon a trip through the plant of the Willys Overland Automobile Company was taken by about seventy-five visitors.

It might as well be said right here that those in charge of the convention certainly had a good stand-in with the weather man. Every day of the meeting was bright and clear, with the temperature hovering between 50 and 65 degrees. Most of the men did their traveling without their winter overcoats. Nothing could have contributed more to the success of the convention than this splendid weather.

The visitors to the automobile plant were brought back to the Secor Hotel, convention headquarters, in plenty of time to rest their feet in preparation for the dance and buffet supper given the first evening. By the time the dance began a large registration had appeared and the floor was crowded all evening. Many of the visiting

members and the auxiliary brought their wives so that the dance was very successful. The buffet supper disappeared magically.

Wednesday's Program

Right on time Wednesday morning, the real business of the convention began. The mayor of Toledo was scheduled to make the address of welcome, but he had to stay in Florida and so sent the deputy mayor in his place. Mr. Hoover, the deputy, welcomed the men to Toledo and presented the convention with the keys to the city. In reply to a question regarding the city jail and police force, he assured members that the jail was nice, but that he would see that no member had to sample the city's hospitality. His freedom was roundly applauded.

In response, George Thesmacher of Cleveland said he had a nice speech all ready when he was advised that the mayor was a general contractor. Thereupon he radically

revised his speech before he came to Toledo. Upon arrival he was told that the mayor was a real fellow and that any speech he might have fixed up would go big. But now the mayor was away, so he had to revise his speech for the third time. In spite of his frequent revises, George's speech proved good.

After reports of the committees on credentials, resolutions, nominating and special problems, Mr. Thesmacher succeeded himself on the rostrum and delivered a very good talk on the book, "Standard Practice in Sheet Metal Work." He related some of the early history of the preparation of the book, told how it was finally made ready to print, and what had been done since publication. His advice was that every local organization should present copies of the book to leading architects in their territory and that the use of the book in specifying sheet metal work should be talked up continually.

The Central Alloy Steel Corporation was represented by J. N. Remsen, who read a paper on alloy steels, their uses, manufacture, characteristics and future. In the discussion following this paper Mr. Remsen was called upon to defend the resistive qualities of "Enduro" steel when used in smoke pipe. It was stated that some salesmen did not recommend the use of this steel for smoke pipe, but Mr. Remsen said that if the right kind of steel was used it would not be affected by acids or corrosive elements in smoke.

The address of Bennett Chapple, Sr., of the American Rolling Mill Company, was a period of inspirational thought and discussion. Mr. Chapple began his address by portraying the changes which have occurred in the rolling of sheets. The situation is, he said, as follows: "Years ago sheets were made and rolled by hand. Manual labor, the sweat of men's brows, turned out the sheets then used. For tens of years, up until just a few years ago, the use of machinery for rolling was the dream of a great industry.

"Millions of dollars, years of time

and effort and experiment has gone into the working out of some process whereby sheets could be rolled without this huge expenditure of labor and effort. The greatest brains and skill of the steel industry were spent unsparingly to perfect some means of overcoming this difficulty.

"And then changes in the industrial life of the country brought about the continuous rolling process. The automobile industry and the radio industry, the metal furniture industry and others sprang into enormous production almost overnight. The demand for sheets became so continuous and so pressing that something had to be done. An engineer from the paper industry thought he could work out the system. He was put to work. For fourteen years he worked unceasingly to perfect his process. And he succeeded. Today a billet of steel weighing tons starts at the first roll and in one minute and a half is reduced to a sheet such as we put on our roof, into our motor cars, into our spouting and gutters.

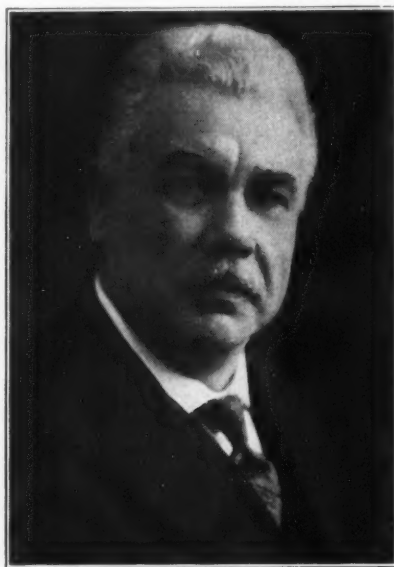
"Production of sheets has now overreached consumption. The mills are equipped to turn out sheets in

uses will be found for the material. We will find ourselves surrounded by a world of sheet steel. Who can say that our homes will not all be equipped with steel furniture and fixtures, that our homes themselves will not be shipped to us knocked down and built of sheet steel. It is not at all a far-fetched dream. I can visualize bathrooms assembled in units ready to put into their proper place within the house. I think it not too ridiculous to imagine our cars rolling down long roads covered with steel sheets to take the wear. I can see hundreds of new uses for this material and I believe we all will see the day I speak of come into being.

"But in the meantime the sheet metal man is going to have to revise his ideas of selling, of manufacturing, of buying, of every detail of his business just as radically as we must change our thoughts here this morning to understand the things I am speaking of. He must stand ready to see clearly a changed world—a world in which his place in industry will be a dominant one. He must be ready to change his whole train of thought. If he does he will ride in on a new wave of prosperity and business standing which today may seem fantastic."

Mr. Chapple was followed by Dr. Stephen K. Mahon, a minister who is much in demand as a speaker before organizations of business men. His subject was, "What My Job Means to Me." Almost his first remark was that he was not going to talk on the subject listed, but was going to talk about the wonderful age we are now living in.

He compared the wonders of today with the conditions of a period around 1900. "How different," he said, "are conditions now. We can all remember how folks lived then. We can recall how slow transportation was, how much of a novelty a telephone message was, how little we visualized such modern necessities as the radio, the electric light, the automobile, the airplane. Yet we can take this lack of vision and apply it to today's way of thinking, for we can visualize little better than



E. J. Hoersting, Treasurer

such quantities that before long architects, engineers, and designers will find available a material—sheet steel—which is of such a price and in such quantities that many more

our fathers did the things which will be commonplace fifty years from now."

His entire discussion was a plea for manufacturers and business men to look as far into the future as possible and to keep their vision clear and unafraid. —

Wednesday's Entertainment

The ladies of the convention were taken for a shopping tour and luncheon followed by a theater party in the afternoon. In the evening the auxiliary gave a dance which was attended by all the ladies and the males who thought they could shake a wicked foot. It was a huge success.

Thursday's Program

The first paper of the morning was delivered by D. M. Strickland of the American Rolling Mill Company. The title of his talk was "Your Future Business." Mr. Strickland proved a very presentable speaker; he got his audience into a quick step frame of mind with some very pithy and new stories. He then launched into the main part of his talk which proved very inspiring and well thought out. The speech is published on another page of this issue of the AMERICAN ARTISAN.

This inspiring address of Mr. Strickland's was followed by A. P. Lamneck, whose subject was, "Shall Manufacturers and Jobbers Sell Direct to the Consumer?" Answering this question, Mr. Lamneck said he firmly believed that it depended upon conditions. "I have always felt a warm spot for the little fellow," he said. "I still feel that way and I never want it said of me that I will not give the little fellow a chance to start. How many men here started without a dollar of capital, with only their brains and hands as assets? If we had never been given a chance to start, how many of us would be here today? I do not believe that the furnace and sheet metal industry should be a closed industry. Nor do I believe that just because there are ten sheet metal or furnace men in town, no others should be allowed. Not all the furnace men nor all the sheet

metal men running shops today are business men. We have just as many duds in our industry as there are in any other. Why should a new man, who possibly is a better man than half the existing men in the community, be kept out when the law of averages will show that

To be successful the sheet metal contractor or the furnace dealer has to be a first class business man. We sometimes overlook this fact when we compare our business with some huge corporations. But the sheet metal and furnace man has to be a highly trained buyer, a skilled artisan and mechanic, a master salesman, an efficient bookkeeper and accountant, and even a good office boy.

while he is succeeding several of the others will fail?

"But I do not believe, on the other hand, that any manufacturer should send his equipment or his materials out to every Tom, Dick and Harry. If he has a good distribution agency he should be content. Just another outlet for his wares is only that much additional danger of another failure. The manufacturer should be a business man. He should know when to enter a market and when to keep out. If he does not co-operate with the organizations now existing he will lose out in the long run, but if he does co-operate he will succeed."

In addition, Mr. Lamneck told of the trials and tribulations of the

sheet metal and furnace man. He said that he believed that the Ohio association could have 500 members present at next year's meeting if every man would get out and pull. The industry is on the upgrade. It needs active, intelligent organization and leadership. If this is given and co-operation is had from all members, next year and all years to come will be big years in spite of business slack or setbacks in other industries.

The final address of the day and of the convention was given by J. C. Miles of the Warm Air Furnace Fan Company. Mr. Miles delivered a very pithy and interesting address on air conditioning in the home. He showed by figures and charts the great heat loss suffered each year through use of inefficient and poorly designed warm air heating systems. He illustrated the interest in the more technical phases of warm air heating by demonstrating the heat loss of different kinds of pipe. On the table he placed five cans, each having an exterior area of just one square foot. The first can was bright tin, one thickness; the second a double bright tin; the third a single tin covered with one layer of asbestos paper; the fourth bright tin covered with three layers of asbestos paper, and the fifth bright tin covered with three layers of air cell paper.

Into the five cans he poured 170-degree water and inserted a thermometer in the water. The top was sealed and the cans left for more than an hour. The temperatures were then read, showing the losses due to radiation and conduction in the different pipe.

"What is needed more than anything else," said Mr. Miles, "is a general recognition that heating is far more important than the new car or the new radio, and that properly conditioned air is going to be demanded by home owners before many more years." As a concluding feature of his talk he demonstrated his company's new centrifugal fan equipped with the new small size louvers. This demonstration brought out many questions regard-

(Continued on page 44)



Mr. John M. Smith

467 Prairie Ave.

City

Picking Up Business With One Cent Postcards

THE contractor of sheet metal or warm air heating work who waits for orders to come in usually waits a long time. Some contractors contend that it doesn't pay to go out after business, particularly during slow times, and we also have those who state that special sales efforts don't bear fruit. In answer, it can be emphatically stated that the contractor who has a satisfactory service to give, at a reasonable price, will win greater recognition and widened sales fields by letting people know about himself.

It doesn't matter by what means or mediums. By telling we are selling. And so far as the statement that adequate returns do not always attend sales efforts is concerned, the answer is the procedure wasn't carried out properly. Oftentimes the contractor doesn't put advertising to a thorough test. One or two advertisements may be run, and even these may not be of the right sort. Persistence and repetition are necessary.

By FRANK V. FAULHABER

Now the smallest contractor has at hand one of the most effective means of developing more business. This medium is the ordinary Government postal. Nothing elaborate is involved. The expense is negligible. Nor is much work required in getting out the postals. The dif-

ficult job is to get over his message. And here, by means of the ever-handy Government postal, is a medium that is fast working and inexpensive. Not even printing is required.

A short sales talk sent to a prospect on a postcard has an extra personal touch that is desirable. The more individual and personal the

See our new designs in Metal Ceilings
for
SCHOOLS-STORES-HALLS-OFFICES-RESTAURANTS-CHURCHES

We have a new book which shows many
new attractive designs of METAL CEIL-
INGS and WALLS.

WINTER IS OUR SPECIAL SEASON FOR INSIDE WORK

Have us apply a METAL CEILING for you now --
phone us to call on you with our book of new
designs. We can give you an estimate and
erect the ceiling in a jiffy-- BUT DO IT NOW

JONES SHEET METAL WORKS
Peru, Illinois -- Phone 643

A short sales card to be mailed to business men remodeling their stores or to those who should remodel.

message is the more effective is its appeal. Of the many printed advertising messages received daily, how many receive attention? The recipient is bored. He receives so many. And they are nearly all alike. Nothing to set them apart. What he looks for is something outstanding, something different from the rest.

Many sheet metal and warm air heating men may say they have not time for this particular work. Often, true, he himself may not have the time. But, assuredly, someone in the office has spare minutes that profitably might be utilized. When the contractor or proprietor himself cannot attend to this phase of the business, then he should assign the responsibility to someone capable and willing.

On a special sales letter a long appeal is customary and in fact is often desirable. However, in a postal appeal we have an entirely different proposition. No one would expect a long message on a postal. What he looks for is a quick, get-over message. And that is what is needed.

Perhaps the contractor of sheet metal and warm air heating work finds the lack of proper prospects the greatest problem. However, he should never want for prospects. For one possibility, there are the customers, present and former. Have the names and addresses of all these been retained? If not, why

not? Every customer, bear in mind, is a lead to future business. And it is to the advantage of the sheet metal contractor to make the most of each lead.

If we go back and review the former customers now on the lists or books, it will be rather surprising how many familiar names will again be revealed. Here we have Mr. Robert Wilkins, for example, who had a warm air heating job performed many years ago. It might be five, six, or more. Where has this customer been, and why has he not consulted again regarding other services? Was he satisfied with the job as performed? If not, why not? Does the contractor know? Why, really, has this cus-

tomers staid away? If we have not figuratively maintained a close, up-to-the-minute string on this customer we are, unfortunately, none the wiser, nor the richer.

The watchword of direct mailing should be—Keep in touch with your customers. Learn about their needs. Assuredly, the customer or company having been rendered a satisfactory warm air heating service should be in line for other work. Have they been approached regarding special work? Take the case of the imaginary Robert Wilkins. Just what different kinds of jobs does he need? What different kinds of work could he be interested in? Get after these customers, now, aided by the Government postal.

Now for more prospects. Consider the people in your town or community who have never used your services. The handy telephone book provides another source which can be culled for likely prospects. What of people coming to live in your town? What a wonderful opportunity here for the sheet metal and warm air heating contractor! Moving-van men have just the desired information at their very finger-tips regarding these new residents. Make some form of arrangement with them.

And yet need we not stop. Consider the lists of special prospects: tax lists, marriage lists, automobile listings, etc., each leading us deeper

-- PROPER VENTILATION --

This is the time of the year when proper ventilation is needed the most.

It is also the time of the year when the Jones Sheet Metal Shop can best study your ventilation problems --

The CORRECT placing of the RIGHT number of EXHAUST VENTILATORS of the RIGHT size will provide the desired ventilation for many types of FACTORIES-BARNS-GARAGES-SCHOOLS-ETC.

If you have a ventilating problem phone us today - we are ready to serve you.

JONES SHEET METAL WORKS, 245 Reed St. Peru. Phone 643

A postcard message can be read in about 22 movements of the eye. It is almost impossible to fail to read such a message. If cards are sent regularly they will register sooner or later.

WARM AIR FURNACE HEAT IS THE MOST COMFORTABLE AND HEALTHFUL

RIGHT NOW is a good time to call us in to talk with you about an up-to-date warm air heating job.

If your home or any part of it is not properly heated your family is experiencing unnecessary discomfort.

WE SPECIALIZE in installing warm air heating systems that properly heat the home.

WINTER IS NOT OVER YET-- we can give you real heating service in a jiffy -- and on a time payment plan.

ASK US ABOUT FURNACE FANS, AUTOMATIC HUMIDIFIERS AND HEAT REGULATORS
JONES SHEET METAL WORKS, 245 Reed St., Peru. Phone 643

Repairs and servicing on the furnace are always a need among home owners.
Select one idea and sell that on a postcard.

into possibilities; lists of church members, also business, social and civic organizations. Indeed, should we ever lament for lack of prospects?

Now let us consider specific, ready-for-use appeals. First, let us consider winter work. There are a great variety of odd jobs that might be contracted during winter. Most prospective customers never think of having work done until it is brought to their attention. Take the business man needing sheet metal work done. Timely reminding is necessary.

Wording should be couched concisely and briefly. Obviously, the more specific and individual the message, the more consideration it is sure to receive. That is because it turns attention upon a special kind of work, in a distinctive, individual way.

The same rules must govern the furnace man using the penny postcard in his advertising. His postals must be short, to the point and indicate a real service. Each one should emphasize one common trouble and suggest the remedy. If too many ideas are crowded onto a card the reader loses interest. On the other hand if one point is brought out the postal should draw a favorable return. Simplicity is the keynote of postal advertising.

Suppose, for example, the first card calls attention to the smoke pipe and suggests a new pipe or cleaning. The second may suggest a thorough cleaning of the furnace. The third might call attention to the importance of humidification and suggest an automatic humidifier. And so on down the list. The point is that out of each mailing an established percentage will be in need of the very things the card is calling attention to and the rest will probably read the message simply because it is so easy to read.

And even more important using one message on each card affords a splendid opportunity to repeat the mailing with another suggestion. Repetition with a convincing, sound argument on each card is the best way to get these short messages to

the prospect.

The messages suggested in this article indicate only initial inquiries. Follow-ups are advisable and important. The more inquiries, the more repetitions, the greater the responses. An illimitable number of

different appeals can be constructed in the interest of sheet metal and warm air heating work. Keep records, tabulate results, govern future sales efforts accordingly. Government postals will help bring you more business.

"You Killed the Goose" ENLISTS MORE SUPPORT

IN THE February 15 issue we published an article, "You Killed the Goose." The gist of the article was that consignment selling is an evil which should be stamped out—must be stamped out—if the warm air heating industry is to take its rightful place in the construction scheme of the nation. We expected replies and agreements and perhaps disagreements. Some have already come in. Here is one of the first ones and one of the best ones. Read it.

February 18, 1930.

AMERICAN ARTISAN,
139 N. Clark St.,
Chicago, Ill.
Gentlemen:

The writer couldn't resist the impulse to briefly write you about the article in the ARTISAN of February 15, captioned "You Killed the Goose." The boy that wrote that told the truth. We are against it first, last, and always. We have been all the way through the school, know all about its pitfalls, and know that this concern never in its history has made a nickel on any consignment deals, especially if such deals ran into carload quantities or more, and one point that the writer of the article did not bring out was this: that the man who buys his furnaces on consignment will sooner or later find himself in the financial limbos and will wind up in the arms of the law, and I will state just briefly why.

This stock of furnaces is in his hands on consignment with no special date set for the payment of the merchandise.

Times are rather hard along in January, February and March, and what sales he makes are needed to buy bread, potatoes, butter and clothing for himself and his family, so he uses the money knowing full well that in the fall he will be able to make up this deficit easily, and



R. W. Strong

the firm who has consigned him his furnaces will never know the difference.

Fall arrives and business isn't especially brisk, for instance, like the fall we have just experienced, and he finds he is unable to make up to the concern this deficit, or, let's put it right in plain English, to pay back the money he has stolen. On December 31st, of course, there is a reckoning. Everyone who has consigned contracts in the country must reconcile their consigned inventories with the records at the home office;

(Continued on page 44)

Working Out Pattern for Square to Round Transition Pieces

Drawing Shows Hopper Placed Over the Corner of the Wall

SQUARE to round transition pieces are made in such a great variety of ways and designs and usage that a person often marvels at the many applications that really can be made of this problem. Recently one of our friends sent in a drawing showing a hopper placed over the corner of a wall, much as our plan and elevation shows. This is something rare, yet its application

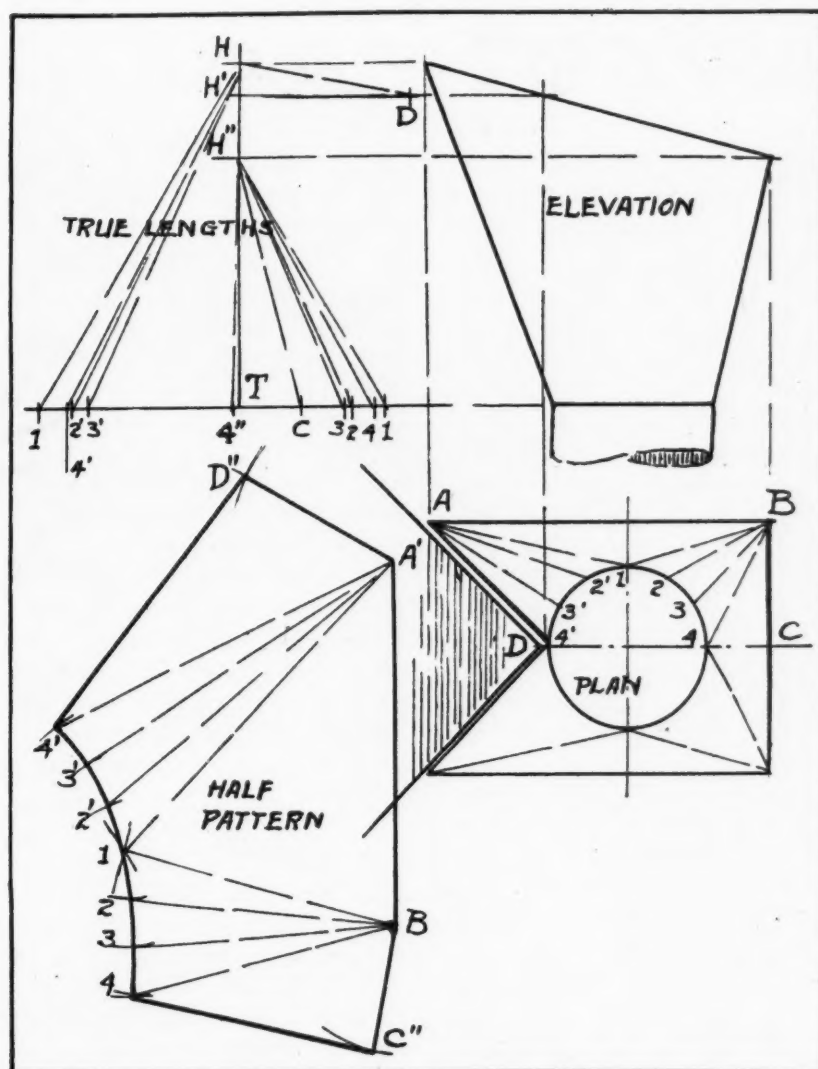
may be used in several ways, if not exactly in this form, then in others.

We first draw the elevation, giving the height and slopes of the sides, as well as the top. Next draw the plan view, having the length A-B conform with elevation, making the round pipe conform with the diameter 4-4'. Then draw the corner, A'-D, to represent the building wall. After this divide the half

plan of pipe in equal spaces and draw lines to the corners, A and B.

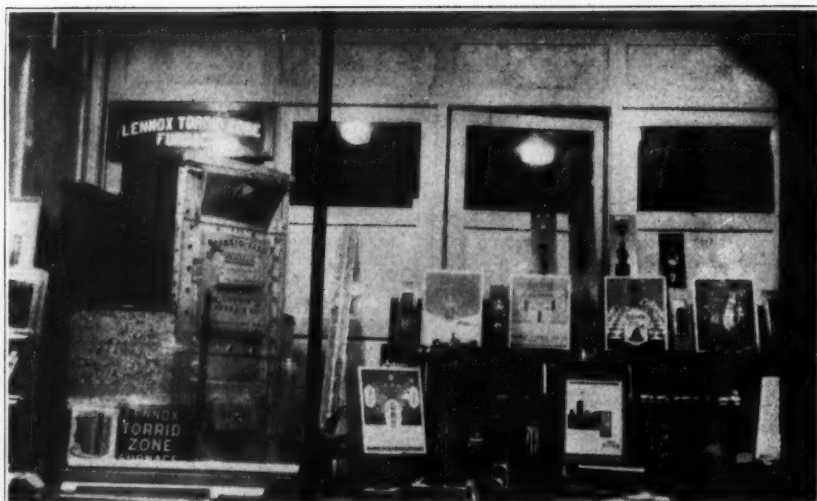
Next draw the diagram of true lengths, placing altitudinal lines H-T. Also observe the other altitudinal points, H' and H'', which correspond with similar points in elevation. Then with dividers pick the different lines from plan as B-1-2-3-4 and C-4, and set it as T-1-2-3-4-C. From these points draw lines to H'' and we have the true lengths for the front part of hopper. Next pick lines a-1; a-2'-3'-4' from plan and set as T-1-2'-3'-4'. Next pick 4'-D and set as T-4'' and draw lines to the proper altitude. Also pick lines A-D of plan and set as H'-D, so that D-H is the true length for A-D of plan.

To start the pattern draw any line, as A'-B', and with dividers pick true length H-1 and set as A'-1 in pattern. Next pick H''-1 from diagram and, using B' as center, cross arcs in point 1. Now use spaces 1-2 from circle of plan as a girth space, and using 1 in pattern as center, strike arcs in point 2-2'. Now pick true length, H''-2, and, using B' as center, cross arcs in point 2. Next pick true length, H-2', and using A' as center, cross arcs in point 2'. Repeat this process until point 4-4' is established. Then make B'-C'' equal to B-C of plan and make A'-E'' of pattern equal to H-D of the diagram. Now use the throat and heel lines of elevation for seam lines in pattern or which are the same as H''-C for 4-C'' and H'-4'' as 4'-D''. Draw lines through all points where arcs cross and add edges for assembling, and the pattern is done.



Patterns for Irregular Transitional Hopper

For 27 Years Holloway's



Windows and Sales Methods Have Been Known in Fremont

TO BE SURE, there is no definite statement in the law books of any part of our country as to when and how bait may be used to lure the builder into the store where furnaces and other essentials for new homes are sold, but some seasons are more adaptable to this purpose than others. And, while the young man's thought turns to love in the spring, it is entirely possible that his pocket book may not turn to building at that season, and that almost any time a display of home suggestions may result in a desire which leads eventually to purchase.

The L. F. Holloway Hardware Company of Fremont, Nebraska, believes that a window should contain related items. For this reason, it combines such articles as furnaces, eaves trough and spouting with builders' hardware. The connection is evident. No home is complete without finish hardware. Neither is it considered without some method of heating and some means of draining the roof without allowing water to drop or pour promiscuously upon anyone who happens to be unfortunate to stand near. Occasionally they devote an

entire window to hardware and another to metal work, but frequently they find the combination most successful.

Even though the passersby may not be contemplating building at once, the window attracts the attention and a thought is planted. John may say to Mary, "Wouldn't locks like that look fine in our new house?" And Mary, with a far away look in her eyes may answer, "That furnace would make a real home out of our house next winter." Some man rushing along the street may stop suddenly, the sight of that eaves trough reminding him that during the last rain there was considerable difficulty at his home. One thing will lead to another, and before he has left the store, he may have ordered extensive work done and given the names of friends who are going to need similar help.

Of course, the window must not be left to do the work alone. The Holloway force keep their eyes and ears open all the time. They scan the builders' page of the daily paper and note the names of those who are building or remodelling. They follow up all information given them along these lines. A furnace

is set up on the sales floor, and the man in charge of that department is always ready to offer suggestions, to go over plans, and to help in any way possible. He does not belong to the clock-watcher class, and cheerfully goes to homes any hour of the day or evening if some one interested wants to talk heating problems. No job is too small for him to consider if the builder wants quality work, and he has installed many large plants.

Newspaper advertising is linked with window displays and live store work. In the premium lists for county fairs, mention is frequently made of heating plants, especially furnaces, for more and more the farm homes are being made strictly modern.

It must be remembered that different kinds of bait and ammunition are needed for different kinds of game. Builders cannot be grouped into one great class and a volley of sales efforts shot in their direction. It is necessary to study human nature and make an appeal which will strike the general average, then study individuals who express some interest, and present the subject in

(Continued on page 44)

Iron Drummers or Furnace Engineers?

By Wesley J. Johnson

AFTER reading the article as published in the *AMERICAN ARTISAN*, treating with the meeting of furnace manufacturers with the Federal Trade Commission, acknowledging a few of their faults and asking the Commission's help in making them come clean, it reminds me of an experience I had about nine years ago at a club, at which time a remark was made by the writer that did not make such a "hit" with a few of the members. Some of them plainly said so, inasmuch as it was rather early for a new member to state facts.

The members would and did enter into a so-called gentlemen's agreement as to prices and terms and freight allowances, etc., at these meetings, agreeing to give a 5 per cent differential in carload quantities. Then before they could get home from the meeting they violated this agreement. At this particular time the writer made the remark that there was little use of entering into these agreements unless they were to be lived up to by all. This nearly started a riot.

The thing the writer does not understand is, why all of this scientific research, scientific selling (if we can call it that) and no attention given to *scientific installation*? It is an established fact that the manufacturer as a rule has thus far only been interested in the unloading of a quantity of pig iron or a few carloads of steel by the cheapest method that could be found, not giving any thought to how this article was to be successfully engineered into the consumer's basement.

The manufacturer employs a sales manager who probably was formerly a successful advertising man, automobile, chewing gum or sporting goods salesman, and he in

turn employs a selling crew with the same capabilities, and starts these men out to SELL furnaces. They are good salesmen, because they can sell merchandise. They can be employed on a straight commission basis, maybe with an advance drawing account, but these gentlemen are no more qualified to render an engineering service to the dealer than the writer is qualified to perform an operation for appendicitis. And some of the so-called heating engineers are no more qualified to install a heating system than the salesmen selling them.

The salesmen seek an outlet for the merchandise and find it, if not with a competent installer, then someone who can be induced to at least put a sample on the floor. The American buying public is the goat. Why? Because there is no concern given as to where the article is going or in whose warehouse it is unloaded.

It would seem that every dealer in the country would gladly pay a trifle more for his furnaces and know that the salesman calling on him was qualified to render him a service in time of need or be able to offer him modern assistance in the marketing of the product, rather than buy a trifle less and get nothing but the manufacturer's best wishes after the furnaces have been wished on him.

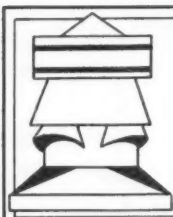
The writer has had twenty years of experience in all branches of the industry and can say that he never made a trip of any length but what he was called upon to help the dealer in some manner. My advice is to go a little farther in this thing of marketing the product, and while

We all admit that more engineering and more salesmanship are needed. Just how far would you go in buying if you could get such service? We would like to know.

safeguarding the public in the purchasing of the warm air heating apparatus, safeguard them in the installation of it. If the furnace is engineered into the house, the owner will have something after he purchases it.

Every manufacturer is better off with some kind of intelligent representation, that the dealer can be given some helpful information about the installation of the product, that a better understanding can be had by those not versed in the proper installation, thereby not only protecting the American buying public, but the product and those making it as well.

It looks very much as though there were a lot of cobwebs to be brushed away in the industry, and when it is done and a sales force that is really of benefit to someone is employed, paid a living wage, not only to sell the heater but capable of rendering some engineering service as well, then the manufacturer will realize that he is getting somewhere. We will all benefit by the experience, as the manufacturer must come to realize that his responsibility does not cease with the dumping of the product in anybody's warehouse, to be forgotten.



GRAVITY EXHAUST VENTILATION



Ventilation for Moisture Removal

ONE of the ventilation problems most often met with during extreme cold weather is that of moisture removal. It becomes acute at that time on account of condensation on cold surfaces, and is in part due to the total closing up of buildings, neutralizing ventilation. Ventilation by itself, however, will not always solve the problem completely, so that it is necessary for the ventilation man to become also a heating engineer with recommendations as to heat appliance, heat distribution, heat conservation and insulation.

It can easily be seen that I am leading inevitably toward my regular and constant advice, "Call in the ventilator manufacturer"; and that is true, for I am trying to be truthful and conservative. Both truth and conservatism compel me to insist that the contractor is taking a useless risk if he tries to "go it alone" on a ventilator problem, particularly on the tricky one of moisture removal.

In a problem of this kind, a careful diagnosis is the first and possibly the most important thing, and if one so-called expert out of a hundred can make a careful and accurate survey, I have failed to find him. I am working right now on a job where I was called in to overcome window sweating and where a survey has sold the owner on the need for complete ventilation, with certain revampings in the heating. I am told that at least twenty-five plumbers, blower experts, insulation engineers, etc., had taken a whack at it. It is not a big job, but an intelligent survey changed it from a petty annoyance to a nice little job for the sheet metal contractor,

Paul R. Jordan is a ventilating engineer of wide acquaintance and experience. He conducts his own business, The Paul R. Jordan Company, Indianapolis, specializing in the manufacture of ventilating equipment.

This article explains some of the problems of ventilating and gives the method used to solve one especially stubborn job.

carrying a reasonable profit for installing a fan and some duct and register work instead of a sales loss for some inconsequential fiddling.

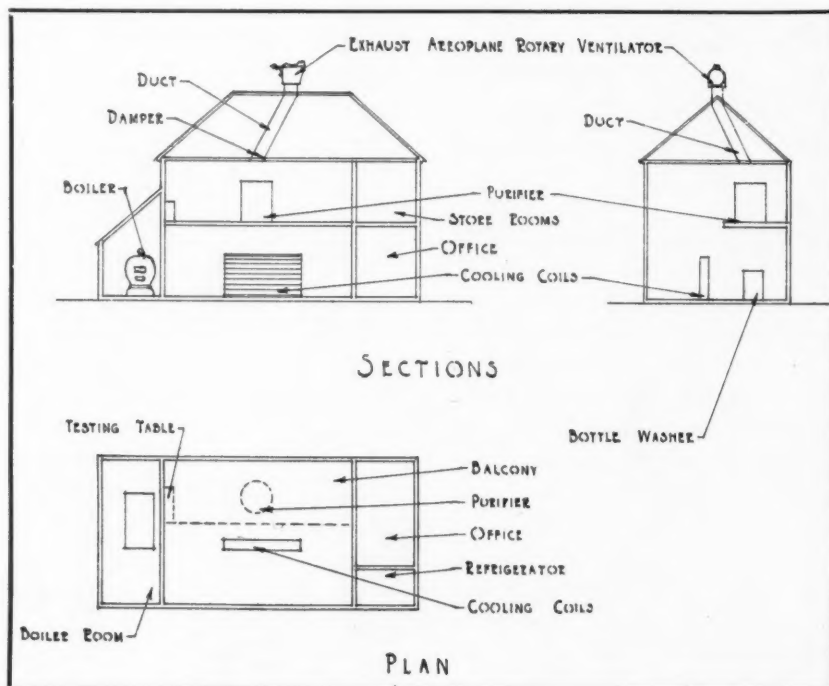
Moisture removal is a problem for a person of experience in this line because it involves so many hazards. Any old installation may

work, and then again, it may not. But the man on the job has a big advantage, and if he works along with his ventilator manufacturer, his local observations, coupled with the manufacturer's experience and engineering knowledge, will make a good combination.

A Creamery Installation

I was called in on a creamery job recently in which great quantities of steam were released into the room by sterilizing and washing machines. This steam was condensing on a metal ceiling, and dripping down from it profusely.

My survey of this plant did not take me an hour, but I entered it with the intention of ascertaining all the facts possible, and unhurriedly. I went over the plant in the company of the owner and tried to learn all I could from him, as well as from my own observations.



One of the greatest difficulties in moisture removal problems is that conditions vary, particularly weather conditions, and a solution taking care of conditions as found at the time of my visit might not take care of other conditions sometimes met with. Cooperation on the part of plant operators will serve to bring these out.

In this case, there was no doubt as to the source of the humidity and no chance of controlling or curtailing the releasing of large quantities of moisture into the air. On the other hand, there was no necessity for maintaining a low relative humidity, as a small amount even of condensation at times was not greatly objectionable. Insulation was not practical nor necessary, valuable as it often is in cases of condensation.

Heat appliance was already taken care of, as the steam releasing machines themselves were hot and were constantly radiating heat. Heat distribution might have been improved by the application of heat to the outside walls, but this proved unnecessary.

Heat conservation was not a problem in this particular case, as the steam used in the plant operation, together with the proximity of the boiler room, furnished ample heat at all times. I also found the boiler room clean and free from dust, so that the outside air could largely be drawn through it and heated by waste heat radiated from the boiler before being introduced into the operating rooms, which would give it great drying power.

This particular job was a small one. One 24-inch Aeroplane Rotary ventilator installed directly in the center of the building did the trick. A metal duct was run from the ventilator through the roof space down to the ceiling, to open directly over the purifier, which happened to be installed on the mezzanine close to the center of the operating room. This duct was fitted with a good damper, manually operated from below, which gives them control of the ventilation.

The result is that the daily incre-

ment of moisture now, instead of accumulating and condensing on every surface, is riding out on 2,328,000 cubic feet of air. You can see it from the outside pouring out of the ventilator as it hits the cold air and turns white, and they always like to see it.

This may look like a good deal of work to sell a 24-inch ventilator, but I claim it is better to sell a 24-inch ventilator at a profit than a

24-inch furnace at a loss. And the actual sale took scarcely longer than it has taken me to tell about it. I could pay a salesman a mighty fancy salary to sell ventilators for me on this basis all day long, and there is more in it for the contractor than there is for me.

There is one more element in this job that I might mention, and that is that the job is not 100 per cent

(Continued on page 44)

Some Good Ventilator Man Step Up and Solve This Problem

A FEW days ago the Hanson Hardware Company of Ashland, Wisconsin, sent us a problem in ventilation for which they wanted a solution. Correspondence developed that the layout of the job is like the drawing given below.

In sending in the problem they said:

"We have an order for an 18-inch galvanized ventilator to be used on a roof which is built onto a large building. We have already used three types of ventilators, but they do not do the work required. What we wish to know is where we can find the correct style to use and also

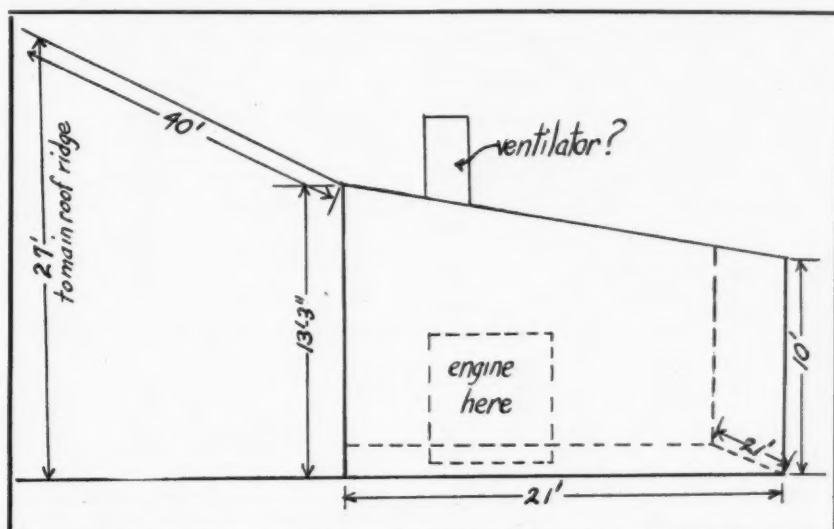
patterns to make from.

"The trouble we have had with the ventilators already used is that they draw air in instead of exhausting it from the shed.

"The ventilator is to be placed over a large steam engine which is always hot. The drawing shows about the position the ventilator will have. Can you help us on this?"

We are publishing the letter and showing the problem.

Step up, some of you good ventilating engineers, and tell us how you would solve the problem and what has been wrong with either the installation or the type of the other ventilators used before.



Missouri Sheet Metal Men Hold Peppy Convention

The tenth annual convention of the Missouri Sheet Metal Contractors' Association was voted by all present a huge success. Not only was there a very nice attendance, but the papers and discussions were lively and chock full of pep.

Much of the success of the convention was due to the untiring efforts of W. R. Seaman, president, and W. F. Wehrman, both of St. Joseph, where the convention was held.

After registrations were out of the way on the first morning, the convention met to be welcomed to St. Joseph by Mayor L. V. Stigall. Graciously the mayor offered the delegates the run of the city and the protection of the law. President Seaman responded, thanking the mayor for his hospitality and assuring him that the courtesy was greatly appreciated.

The business of the convention got into full swing without delay and committees on credentials, auditing, resolutions, and grievances were appointed.

George Harms, National Association Trustee, of Peoria, Illinois, delivered the first paper of the meeting. He gave some very pertinent descriptions of the new book, "Standard Practice in Sheet Metal Work," and related some of the experiences the national association has had in placing the book with architects and engineers. "Already," he said, "we have had hundreds of complimentary replies and letters. There seems to be a long felt need for just this kind of a book and we now can say that the book is really opening the eyes of architects to

what can be done in sheet metal. Just as soon as these architects learn what they can do and at what comparatively low prices sheet metal work can be had, we should see a great boom in our industry."

At the conclusion of Mr. Harms' address Treasurer Frank T. Bokern and Secretary Luke Tiernan gave their reports. The report of the treasurer was referred to the auditing committee, while that of the secretary was voted approved.

Just about this time the mayor returned to the meeting and passed around cigars. He said that he regretted he could not attend the luncheon but another meeting prevented. The hardened conventioners were unanimous in their expression that they had heard of a lot of courteous officials, but Mayor Stigall had them all backed off the map.

After luncheon and the reading of telegrams and letters to the convention a moving picture of strip process rolling was shown by the American Rolling Mills Company. This movie proved to be a talkie with "Bud" Walker providing the talkie part of the picture.

Reports of committees were then heard.

P. E. Parrott of the Wyeth Hardware & Manufacturing Company, St. Joseph, followed with a very instructive and well delivered talk on credits.

This discussion was followed by L. C. Leimkuehler of the Copper and Brass Research Association, who related the results of investigations and research carried on by his association during the past year. This report covered effects of salt

air and salt moisture, specified depths of gutters for average rainfall, tests of seams and the strengths shown to be usable, etc. As was natural, his talk brought out a lot of questions regarding copper for roofing and gutter work, and much benefit was derived.

The nomination of officers followed. Those elected were:

President—B. Kolbenschlag, St. Louis.

First vice-president—Andrew Zahner, Kansas City.

Second vice-president—W. F. Wehrman, St. Joseph.

Secretary—Luke Tiernan, Jr., St. Louis.

Treasurer—Frank T. Bokern, St. Louis.

Sergeant-at-arms—Martin Steinmetz, Kansas City.

Directors for three-year terms—Wm. R. Seaman, St. Joseph; Clarence Sundahl, Kansas City.

St. Louis was accepted unanimously for 1931 convention, the date to be set by officers.

An invitation to attend the National Association of Sheet Metal Contractors' convention, June 10, 1930, at Pittsburgh, Pa., was extended by Trustee Geo. Harms.

The banquet was held in the main dining room of Hotel Robidoux at 6:30 p. m. Entertainment was by "Dixie Sisters" of Radio Station KFEQ. The installation of officers was supervised by Julius Gerock, Jr., national trustee. A real whoopee party followed.

Tuesday, February 19, was devoted to sight-seeing and aeroplane rides, some twenty members getting their first thrill in the air.

Overhead, Advertising, Sales, Costs, Feature Sessions of Pennsylvania Sheet Metal Contractors

FOR the last few years interest and attendance at the Pennsylvania Sheet Metal Contractors' Association annual conventions have been noticeably on the upgrade. This year's convention, held February 18, 19 and 20, in Beaver Falls, Pa., emphasizes this increased interest by attracting a large number of sheet metal men.

The meetings were well attended and the papers presented were of unusually high order.

G. A. Mytinger, president of the local Association, called the first meeting to order in the General Broadhead Hotel on Tuesday morning. He introduced Mayor William Levis, who welcomed the meeting to Beaver Falls. After responding, President W. F. Angermyer appointed convention committees on credentials, resolutions, and auditing.

President W. F. Angermyer, in reporting on his official activities of the year, traced the history of the organization since 1920 and then gave an account of the various meetings of officers with locals throughout the year.

Moving pictures showing the manufacture and application of Monel metal were then shown by A. Harry Galley for the International Nickel Company. The pictures had been prepared to show sheet metal contractors and others an opportunity for increasing their business.

At the opening of the afternoon session, Louis Luckhardt, chairman of the Vocational Educational Committee, reported that the committee had not received the cooperation it deserved. Members were urged to take an active interest in persuading

school boards to incorporate classes in sheet metal work in their studies.

The principal speaker on the afternoon's program was Edwin A. Scott, editor of Sheet Metal Worker, who spoke on the subject, "High Cost and a Remedy."

Mr. Scott pointed out that all business men are facing and encountering increasing costs on every hand, emphasizing that although it is the duty of every business man to combat increases in costs, there is but little hope of making any showing in this direction. The remedy lies rather in producing greater net results.

Railroads and steel mills, both in the face of rising costs of labor and materials, have during the past two or three years, materially increased the net profits to their stockholders. This had been accomplished by the installation of modern equipment. The sheet metal contractor, stated Mr. Scott, will have to follow the example of these larger organizations and retain as profits the results of their management. Today management is much more important in holding down costs than is efficient labor. Shop owners must analyze their management methods, study their business, and do more planning.

Mr. Scott illustrated these points by telling of a half dozen examples of manufacturers giving more attention now to selling methods by way of helping the dealer and shop owner.

This paper was followed by an exhibition of moving pictures showing the production of sheets by the continuous process in the plant of the American Rolling Mill Company at Middletown.

In the evening there was a reception and card party under the auspices of the local committee.

The first feature of the second day's program, and one of the most interesting and discussed subjects of the whole convention, was the report of the Overhead Expense Committee, read by R. S. Hahn, chairman.

This comprehensive report included the actual operating figures for 12 shops, on one of which figures for both last year and the year before were available. The figures for one of these complete reports were placed on the blackboard, together with the overhead based on both productive payroll and total business for all the shops reporting. The average overhead expense for these 13 reports was approximately 88 per cent of the productive payroll and 26 per cent of the gross volume of business.

A suggestion was made that next year the committee include in the report the rate paid labor as well as the rate charge to customers.

J. E. Merrick, national president, then addressed the meeting on sound business practice for sheet metal contractors. After covering this subject, President Merrick then spoke on the progress being made in the distribution of the association book, "Standard Practice in Sheet Metal Work."

The afternoon session was devoted almost wholly to an address by Jack Stowell, special representative of the Better Business Committee of the National Warm Air Heating Association. Mr. Stowell pointed out that all sales of furnaces, and other articles too, are made on some one or more of the

following appeals: Comfort, thrift, laziness, fear, pride.

"To think that the average person buys the cheapest thing on the market," he stated, "is all a mistake. I don't, you don't, no one does."

"The home owner wants above all else comfort in his home, and that there is a much greater opportunity to appeal to him than you fellows ordinarily do in selling heating equipment."

"Dealers must give more thought to the laziness appeal, which by a more polite name is called convenience. Oil burner people and the makers of thermostats have built up a remarkable business by appealing to the laziness in many people. The American public will pay dearly for anything which saves them from effort."

"Thrift enters into every sale since every owner is vitally concerned in low costs for fuel. But home owners do not replace with a heater of the same kind because it is economical in coal consumption, but rather because the heater has been satisfactory in operation."

Mr. Stowell emphasized the fact that advertising campaigns should be planned, should be continuous, should be diversified, and should be lived up to. He made this point clear by showing how people plan trips for months in advance, but so few dealers ever gave much thought to planning their advertising. He also brought out the point that advertising should be prepared in such a way that it would be instantly recognized whenever and wherever seen.

At the afternoon session the following officers were elected for the coming year:

President, C. F. Luppold, Reading.

First vice-president, F. M. Braeger, Erie.

Second vice-president, J. E. Davis, Pittsburgh.

Treasurer, H. G. Hartline, Erie.

Directors: Louis Luckhardt, Jos. Urban and C. S. Thomas.

In the evening the annual banquet was held in the ballroom of the General Broadhead Hotel.

TAKE A TIP FROM THE AUTO DEALERS

By Harry Clatfelter

In F. Meyer & Bro.'s, "Furnace Installation"

BOUGHT a car recently—within the last year or two? If you did, you probably found it "completely equipped" with several things you could either have gotten along without (if you had to) or have bought at other times—possibly for less money.

Of course, it had a spare tire—and you paid full retail price for it as equipment (but it was extra equipment!) It had bumpers, front and rear—at full retail price to you—at extra cost not in the "F.O.B. Detroit" price. Maybe there was a clock in it—as "equipment" but as extra equipment. Maybe it carried a spotlight too, and possibly chains and a tire cover (with the dealer's name on it for advertising, but he charged you real money to carry his name around on your car!)

You paid for every item (as you can prove if you will carefully check over what you paid as compared with the "F.O.B. Detroit" price) and you paid for them partly because you wanted them and partly—principally!—because the dealer, knowing you wanted them and would eventually buy them somewhere, put them on the car and sold them to you as parts of a "complete job."

Get the idea?

Suppose you "steal his stuff." The next job you bid on, figure into the bid one of the "air cleaners" shown on page 9; then sell it to Mrs. Prospect by explaining that in every home dust and dirt are constantly in the air (as is proven by looking across a ray of sunlight) and that this dust and dirt just naturally has to travel with the moving air in the home. When it is brought down

the cold air duct, this filter "traps" the dust—"washes" the air and at the same time humidifies it, thus making a healthier home atmosphere as well as a cleaner—and more easily kept clean—home.

You make that speech to Mrs. Prospect, and if you do a good job of it she'll not let you leave the air-cleaner out, for she will be seeing cleaner walls and drapes for years and years because of your suggestion.

Then include an automatic furnace draft regulator of some reliable make—and there is really no good reason why the heating plant you sell and install shouldn't be "a complete job" with a "built-in" oil burner, complete with tank, and "all ready to drive away," as the auto dealer tells and sells it.

We repeat what we've said before, men: The greatest need of the warm air heating business today is selling. Americans will buy what they want in 1930, and you can make them want a real and complete heating plant or you can let them "buy" a strictly "price" job in a heating plant (remember, next to the walls and roof, it is the most important part of the home!) and put the remainder of the money you might have collected—some of it as profit—into a radio, an auto or "the real stuff, direct from Canada to me."

Autos didn't get where they are today by coasting down hill; they're where they are due to the most efficient uphill selling America has ever known, and you can well afford to appropriate and make use of some of the selling methods of your auto-dealer friends.



ASSOCIATION ACTIVITIES

Michigan Sheet Metal and Roofing Contractors Ass'n Convention

The 1930 convention of the Michigan Sheet Metal and Roofing Contractors' Association will be held in Detroit on March 3, 4, 5 and 6 at Book-Cadillac Hotel.

As usual, the Auxiliary to the above Association will be hosts to the contractors on one evening during the convention, and this will be Wednesday the fifth.

The entertainment committee has arranged a real Book-Cadillac Dinner and a very interesting and entertaining program. The committee this year has engaged as speaker, W. B. Burruss, who for the past two years has been on the program of the National Warm Air Heating Association. Mr. Burruss is one of the foremost pep speakers of the country. He is one of the key men with one of the automobile companies and is also connected with a large insurance company in like capacity. It is said to be worth the time of anyone in the selling end of a business to hear him as he is truly an inspiration to any one.

In sending out the notices the chairman of the Reservation Committee says:

"Put an 'Out of Town' sign on your door from the third of March to the sixth, brush off the old suit case, put on your woolen socks, get a shoe shine, bring your rubbers, and come on over to Detroit to the Michigan Sheet Metal and Roofing Contractors Convention.

"We have arranged for some very interesting and useful lectures which we hope will be of value to you in making your business a greater success next year than it has ever been before."

The program as now outlined is as follows:

MONDAY, MARCH 3

7:30 P. M. Joint Meeting of Board of Directors and Trade Extension Board.

TUESDAY, MARCH 4

10:30 A. M. Opening Session. Song, "America." Address of Welcome by Mayor Charles Bowles. Response by President Wm. T. Busch. Moving Pictures.

2:00 P. M. General Session. "Co-operative Service" by O. C. Holtz, General Manager, Builders & Manufacturers Mutual Casualty Company, Chicago. "Modern Prognostications" by Doctor Ulysses Nathaniel Schmaltz, F. U. L., L. O., F. B. U. L. L., Nome, Alaska. "The New Wind of Business," by Harry C. Spillman, New York.

7:00 P. M. Dinner and entertainment given by the Detroit Association.

WEDNESDAY, MARCH 5

(No Morning Session)

2:30 P. M. Executive Session. Reports of Committees. Reports of Officers.

Selection of Next Convention City. Election of Officers.

2:30 P. M. Annual Meeting of the Travelers Auxiliary.

7:00 P. M. Annual Banquet given by the Travelers Auxiliary. Principal Speaker, W. B. Burruss, Washington, D. C.

THURSDAY, MARCH 6

9:00 A. M. Trip through the Ford Assembly Plant, Ford Airport and Museum.

2:00 P. M. Furnace Session. "The Relationship of the Dealer to the Manufacturer," by Mr. Perc Hammond, Armstrong Furnace Company, Columbus, Ohio. "Mechanical Circulation," by Fred Bishop, Premier Warm Air Heater Company, Dowagiac, Michigan.

"Merchandising Warm Air Heating" by Jack Stowell, Aurora, Illinois. Special Representative, National Warm Air Heating Association.

5:30 P. M. Trip across the Ambassador Bridge and to the Prince Edward Hotel, Windsor.

7:00 P. M. Dinner and entertainment at Prince Edward Hotel, given by the Detroit Association.

(A registration fee of \$5.00 per person will be charged. This does not include Auxiliary Members.)

New York Sheet Metal Contractors Ass'n Convention

The annual convention of the New York State Sheet Metal Contractors Association will hold their annual convention April 16 and 17, 1930.

The convention will be held in Utica with headquarters in the Hotel Martin.

The dates and the place of meeting were chosen recently in a local association meeting held in Utica.

No details of the program are yet available.



Michigan Sheet Metal & Roofing Contractors Association Convention, Detroit, March 3, 4, 5 and 6, 1930. D. H. Ederle, Assistant Secretary, Grand Rapids, Mich.

Illinois Sheet Metal Contractors' Association, Hotel St. Nicholas, Springfield, Illinois, April 8, 9, 10, 1930. Charles L. Radtke, 1049 East 8th Street, La Salle, Illinois, Secretary.

National Warm Air Heating Association, Detroit, Mich., April 15, 16, 1930. A. W. Williams, 174 E. Long Street, Columbus, Ohio, Managing Director.

National Association of Sheet Metal Contractors, Fort Pitt Hotel, Pittsburgh, Pennsylvania, June 10 to 13, 1930. W. C. Markle, 336 Fourth Avenue, Pittsburgh, Secretary.

RANDOM NOTES AND SKETCHES

One of the old timers in the furnace and stove business called on us the other day. Many of our readers know and remember George W. Robinson of Morrison, Illinois. Years ago he was one of the most active stove men in this part of the country.

He is still actively engaged in business, being today a sales representative for a line of stoves and furnaces. Morrison is still his home grounds.

* * *

Mistaken Identity

"We all want you to come to our party tonight, Mandy."

"Can't, Sambo, I've got a case of diabetes."

"Come along anyways, Mandy, and bring it wid you. Those folks will drink mos' anything!"

* * *

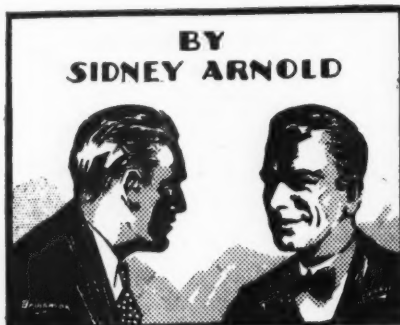
Archie Scheder, who used to be the local salesman for the Milwaukee Corrugating Company of Milwaukee, was one of the visitors at the convention of the Wisconsin sheet metal contractors. Archie is now associated with the Carley Steel Company of Milwaukee.

From all we saw of him he was having a right good time visiting old friends, telling them how good business is.

* * *

F. J. (Ferd) Kiesel Honored for Thirty Years of Selling Furnaces

On February 13th John W. Norris, assistant sales manager of the Lennox Furnace Company, invited Torrid Zone dealers in attendance at the Iowa State Hardware Convention, the heads of the various departments of the Lennox Furnace Company factory at Marshalltown, and five Iowa salesmen, to attend a smoker in the Chamber of Commerce rooms at the Savory Hotel,



Des Moines, in honor of F. J. Kiesel's thirtieth anniversary as a furnace salesman.

Just thirty years ago F. J. Kiesel (Ferd) sold his first Torrid Zone furnace and has been at it ever since. Thirty years on the road has made Mr. Kiesel many friends and on this occasion he was congratulated and received gifts and good wishes for the future from a great number of friends.

The Lennox Furnace factory was represented from every department.

* * *

This Reminds Us

Sitting in one of the meetings in Indianapolis not long ago we listened to a railroad man explain just why and what the railroads are doing. Listening to him reminds us of the old railroad story.

Remember it?

"Where's the president of this railroad?" asked the man who called at the general offices.

"He's down in Washington attendin' th' session o' some kind uv' an investigatin' committee," replied the office boy.

"Where's the general manager?"

"He's appearing before th' Interstate Commerce Commission."

"Well, where's the general superintendent?"



"He's at th' meeting of th' legislature fightin' some bum new law."

"Where is the head of the legal department?"

"He's in court, tryin' a suit."

"Then where is the general passenger agent?"

"He's explainin' t' th' commercial travelers why we can't reduce th' fare."

"Where is the general freight agent?"

"He's gone out in th' country t' attend a meeting o' th' grange an' tell th' farmers why we ain't got no freight cars."

"Who's running the blame railroad, anyway?"

"The' legislatures and investigators."

* * *

We have been missing at all the conventions this year the face and personality of Charley Pearson, vice-president of the United States Register Company. And we have not been the only ones to remark on this phenomenon.

But now the mystery has all been explained.

We just got a letter.

The letter is from Charley.

He says:

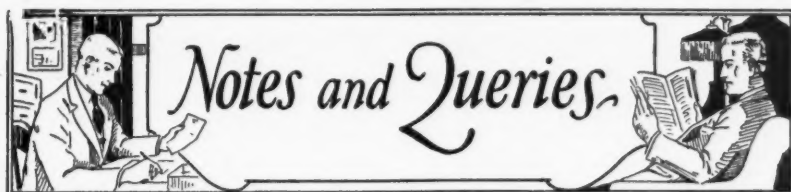
"I have recently been all over this country. I thought my traveling was about over, but I find I was much mistaken. In fact, I'm like the nigger who was being chased by a ghost. The ghost had a high high and slowly overtook Sam. But what Sam lacked in a high high he made up with a pair of long legs.

"Said the ghost, 'Sam, we seem to have been running for a long time.'

"Said Sam, as he let her out another notch, 'Yeh, and we're going to run fo a long time moah.'"

This tells the story of Charley's absence.

He's been traveling.



Notes and Queries

Stover Mfg. & Engine Co.

From Mr. Gard, 5305 Chicago Avenue, Chicago.

Are the Stover Manufacturing & Engine Company of Freeport, Ill., still in business?

Ans.—Yes.

Rubber Plugs for Automobile Radiators

From Martin W. Viestra, 958 Providence Road, Whitinsville, Mass.

Please tell me where I can get rubber plugs for automobile radiators.

Ans.—Faber-Schneider Radiator Company, 2317 South Wabash Avenue, Chicago.

Bronze Signs.

From C. R. Duncan, care J. H. Barnett Sheet Metal Works, Dodge City, Kansas.

Can you tell me who makes bronze signs 26" by 7", letters to be 5" by 6"?

Ans.—Friedley - Voshardt Company, 733 South Halsted Street; Newman Manufacturing Company, 228 North LaSalle Street; Chicago Architectural Bronze Company, 4740 North Clark Street, and Art Bronze and Brass Sign Company, 205 West Wacker Drive; all of Chicago.

"Adjusto" Gutter Hanger.

From A. Zahner and Company, 3041 Wyandotte Street, Kansas City, Missouri.

We should like to know who makes the "Adjusto" gutter hanger.

Ans.—Knab Corporation, 176 Anderson Avenue, Rochester, New York.

Oil Burners for Warm Air Furnaces.

From Uxbridge Roofing and Sheet Metal Works, Mendon and Main Streets, Uxbridge, Massachusetts.

Please give us the names of firms making oil burners for warm air furnaces.

Ans.—McIlvaine Burner Corporation, 744 Custer Avenue, Evanston, Illinois; Hart Oil Burners, Inc., 2200 North Adams Street, Peoria, Illinois; International Oil Burner Company, Watertown, New York; Security Stove and Manufacturing Company, Kansas City,

Missouri; Silent Glow Oil Burner Corporation, 291 Franklin Avenue, Hartford, Connecticut, and Williams Oil-O-Matic, Bloomington, Illinois.

Drive-In Nail.

From L. F. Diddle Company, Marshfield, Wisconsin.

Can you give us the name of the concern in New York that makes a drive-in nail which is used to hold in brick or concrete?

Ans.—Parker-Kalon Corporation, 200 Varick Street, New York City.

Address of Scheible-Moncrief Heater Company.

From Monarch Sheet Metal Company, 3811 East 12th Street, Kansas City, Missouri.

We should like to know where the Scheible-Moncrief Heater Company is located.

Ans.—2545 East 79th Street, Cleveland, Ohio.

Furnace Vacuum Cleaners.

From A. R. Harris, 260 Hohman Street, Hammond, Indiana.

Will you please give me the names of firms that make furnace vacuum cleaners.

Ans.—Brillion Furnace Company, Brillion, Wisconsin; National Super Service Company, Toledo Factories Building, Toledo, Ohio; Gottschalk Heating Company, Covington, Kentucky, and Williamson Heater Company, Cincinnati, Ohio.

Metal Boxes.

From Radio Units Company, P. O. Box 84, Salt Lake City, Utah.

Please advise me what companies can furnish small metal boxes 4 by 4 by 5 inches high, in iron, aluminum or other metal.

Ans.—Chicago Metal Manufacturing Company, 3724 South Rockwell Street, and South Shore Radio Laboratories, 2645 East 75th Street; both of Chicago.

"Zenith" Burner.

From Petersen's Sheet Metal Works, Denison, Iowa.

Can you tell us who makes the "Zenith" burner?

Ans.—E. Miller and Company, Meriden, Connecticut.

"Heat Hustler."

From International Oil Burner Company, Watertown, New York.

We should like to know who makes the "Heat Hustler."

Ans.—American Foundry and Furnace Company, Bloomington, Illinois.

Brass Elbows.

From Novelty Sheet Metal Works, India at B Street, San Diego, California.

Where can we get a quantity of brass elbows made of 22 gauge or lighter brass, inside measurements to be 1 13/16", 2 1/16", and 2 3/8". These elbows are to be used on a cleaning attachment which is attached to the carburetors on trucks.

Ans.—These can be made up for you by the Illinois Bending and Manufacturing Company, 172 N. Halsted Street, Chicago.

Tables for Figuring War Air Pipe Sizes.

From George Pavlick, 639 1st Avenue, Milwaukee, Wisconsin.

Will you please let me know where I can get a set of tables where the size of room and the size of the warm air pipe are figured according to the Standard Code. This would help me in estimating.

Ans.—The National Warm Air Heating Association issue blanks of this kind. Write to Allen W. Williams, Managing Director, 174 East Long Avenue, Columbus, Ohio, for samples and further information.

Milk Coolers.

From L. R. Pease, Monticello, Wisconsin.

Can you tell me where I can buy milk coolers besides from the Creamery Package Manufacturing Company?

Ans.—Cherry - Burrell Corporation, Barber-Goodhue Division, 427 West Randolph Street, Chicago.

Address of "National Sheet Metal Contractor"

From J. W. Marshall, First and Legion Streets, Clarksville, Tennessee.

Can you supply us with the name and address of the publishers of the "National Sheet Metal Contractor"?

Ans.—This is published by the National Association of Sheet Metal Contractors, 336 Fourth Avenue, Pittsburgh, Pennsylvania.

(Concluded from page 19)

so must the business man carry some extra precautions in his estimates. He must build up carefully each separate estimate. He must adopt a proper accounting plan—to receive and record his business activities for study—for use in planning his future estimates. And if he wishes his own records to be most valuable to him, he will adopt a plan of accounting comparable with those of his fellows in the Sheet Metal Industry. He will produce operating figures covering his business which will be comparable with like figures from other shops, and thus can the industry develop accurate average figures covering the cost of doing business. When the Sheet Metal Men know their costs, such things as price cutting, underbidding and kindred faults will cease to be the mountains they are now—they will become mole hills.

(Concluded from page 26)

the practice of guaranteeing the job to the home owner, not only as to the heating efficiency of the plant, but as to the life of the furnace. If it is going to put some real meaning into the guarantee of the life of a furnace, I am all for it. As it now stands a dealer puts in a furnace with a ten-year guarantee, but I defy anyone to read such a guarantee issued by any manufacturer that could be made to stick in any court in the land. We usually find that the guarantee excepts grates, all movable parts, bricks, etc., and specifies that the dealer has to prove that it was installed according to the standard code, that the chimney is perfect, and that the furnace has been fired according to directions and not abused. It is true that the manufacturer has to have some means of protecting himself, but the fact remains from a legal standpoint he does not have to make anything good unless he really wants to. These are just a few thoughts that come to me on reading the article over once or twice and I am sure there are other points that need explanation and analysis for the benefit of all concerned and I would

like to know what other dealers think of it.

NEBRASKA BILL.

(Concluded from page 29)

ing fan usage in connection with warm air heating.

Upon the report of the nominating committee the convention unanimously voted to keep in office for 1930 the officers who had served so well during 1929. These officers are as follows:

A. E. Bogen, Columbus—President.

Joe Dersher, Toledo—Vice-president.

E. J. Hoersting, Dayton—Treasurer.

James M. Saunders, Cleveland—Secretary.

Directors—Mart Armstrong, William Feiten, Charles Grote, Adolph Munkel, James Shaw, P. E. Sullivan.

(Concluded from page 34)

such a way that it will bring special interest to them.

For twenty-seven years the L. F. Holloway Hardware Company has been selling furnaces in and around Fremont. For more than twenty years of that time, the same man—Mr. C. W. Ford—has had charge of this department, and he is recognized as an authority on this subject. He is enthusiastic over his work, and his enthusiasm spreads to his co-workers as well as to his customers.

(Concluded from page 32)

then out comes the sad truth that Mr. Dealer is behind anywhere from five hundred to a thousand dollars, and in some cases a lot more. What happens? A law suit ensues, sometimes the State even indicts the man and puts him in prison for his waywardness, but more often the State keeps its hands out of it, and the manufacturer sues the dishonest dealer and gets nothing.

The manufacturer ships the stock back to his place of business and it, of course, arrives in a more or less shop-worn condition. It can't be sold as new stuff, and where does he get off at? Anyone who has ever

experienced any consignment business knows just where he gets off and knows that it is not a profitable undertaking.

Yours vtry truly,

HOMER FURNACE COMPANY,

(Signed) R. W. Strong,

Secretary and Treasurer.

(Concluded from page 37)

perfect, and the owner knows it. It was sold to him at a figure he can afford to invest at this time, a system which will do away with the annoyance of drippage and also keep his building from rotting down. While under severe conditions, say 15 days out of the year, he gets some condensation, he says that the installation is doing more than he expected of it; in other words, he is getting more than he bought. But he also knows that by installing hoods properly connected to the ventilator and putting a fan section in the ventilator, he could get better results, and he plans to do that later, when his finances allow his going beyond absolute necessities. As it is, his building is drying out and will soon be ready for a coat of paint inside, where before, paint would not stick. Also, his stockroom, where he lost quite a stock of printed matter spoiled by moisture, is now dry. The windows, which used to be coated with ice during cold weather, are now clear, excepting for a little condensation in extreme weather, and the putty which was frozen out before can now be held in place.

In a word, he is so pleased with what he got that he is going to buy some more one of these days. And what was a small job will develop into a very nice contract for the sheet metal shop. It is always good policy to show a man what he ought to have, but it is sometimes best to let him buy it piecemeal.

There are many contractors making nice profits out of ventilator installations; they are selling manufactured ventilators, with the cooperation of the ventilator manufacturer. Ventilation is a growing field and there is no reason why many more contractors should not share in its profits.

TONCAN

Let it rain!..
TONCAN resists
rust, corrosion



USE Toncan for all sheet metal work and you can forget all about rust and corrosion. Ventilators, cornices, spouting, piping—even roofing made of Toncan wears better lasts longer, offers more stubborn resistance to the ravages of weather, fire and lightning.

Toncan is a scientific alloy of pure iron, pure copper and molybdenum, made by America's largest and most highly specialized manufacturers of alloy metals.

Toncan builds good will, because it's *permanent*. Wherever protection from moisture is essential or desirable, build with Toncan and you build customer satisfaction for years to come.

Descriptive booklet free on request.

CENTRAL ALLOY STEEL CORPORATION
Massillon and Canton, Ohio



NEW ITEMS *and* NEWS ITEMS

From and about the Manufacturers and Jobbers

Sturdy Mfg. Co. Issue New Catalogue and Enter New Home

The Sturdy Manufacturing Company, formerly of Elkhart, Indiana, are now established in their new home in Sturgis, Michigan. The company reports that they are now in a much better position to render service to their customers and that their new home greatly increases their facilities for carrying on business.

The Sturdy company have also recently sent out a new catalogue which shows careful attention to the presentation of the company's line of products.

The cover is done in red, black and gray, and presents a very striking front. Inside the book the line of registers are shown in their colors of green, bronze, steel, nickel and brass. The sizes and prices of each item is given directly below or on the same page with the different units. Construction is explained for all the units.

Floor registers are also listed and described.

John W. Norris Becomes Asst. Sales Manager of Lennox Furnace Co.

John W. Norris, who has been with the sales department of the Syracuse, N. Y., plant of the Lennox Furnace Company since his graduation from Boston Tech nearly three years ago, has been made Assistant Sales Manager at Marshalltown, Iowa, taking the position formerly held by Mr. C. O. Norland, resigned.

Mr. Norris is a young man but has gained a good deal of experience in warm air heating during his association with the Syracuse plant. He has done experimental work at

the factory, traveled a territory and devoted considerable time to the advertising and publicity departments.

Mercoird Corp. Announces Patent Reissue and Change of Address

The Mercoird Corporation announces that through their license, under patent reissue No. 15,531, the trade is assured full protection to use their Furnace Fan Control M-53 for any and all Furnace Fan Applications.



Their bulletin A-5 fully describes the construction and uses of this control.

The Mercoird Corporation also announces a change of address. The corporation has acquired a large modern plant, consisting of 90,000 square feet of floor space.

They will be in their new location at 4201 Belmont Avenue, Chicago, by April and visitors to the Seventh

Annual Exposition and Convention of the American Oil Burner Association held at the Hotel Stevens in their city, during the week of April 7 to 12, 1930, are invited to inspect their new plant.

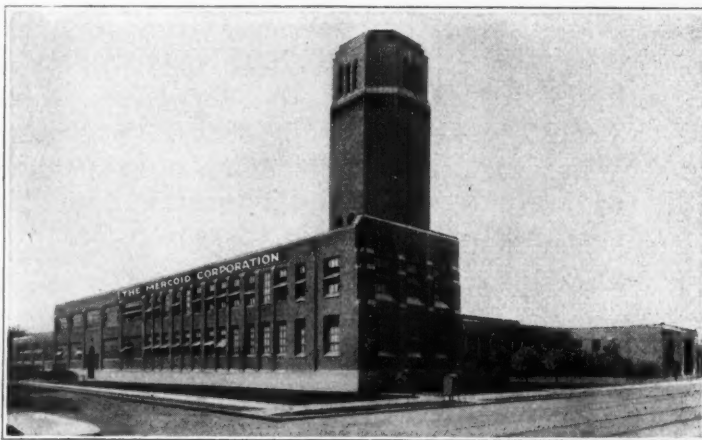
Kleenaire Filter Co. Soon to Issue Descriptive Booklets on Product

The Kleenaire Filter Company, Stevens Point, Wisconsin, is soon to issue illustrative booklets on their product.

Interested dealers are invited to send in requests.

The Kleenaire filter, say the manufacturers, was designed after many years' experimentation by practical heating men to fill the need for a filter that was fool-proof, one that would not mat over and shut off the air returning to the furnace. The construction of the Kleenaire is such that it can mat over completely and there is still a chance for the air to get back to the heater.

There is no need to use oil, water, or any other messy substance in cleaning. The filter should be installed so it can be removed a few times during the heating season, for cleaning.



New plant of the Mercoird Corporation

NO MORE guessing about copper products. Every length of Chase Copper Gutters and Downspouts is stamped with the Chase trademark—the name Chase—and the words “16 oz. copper.” That’s your guarantee. It’s insurance for your customers.



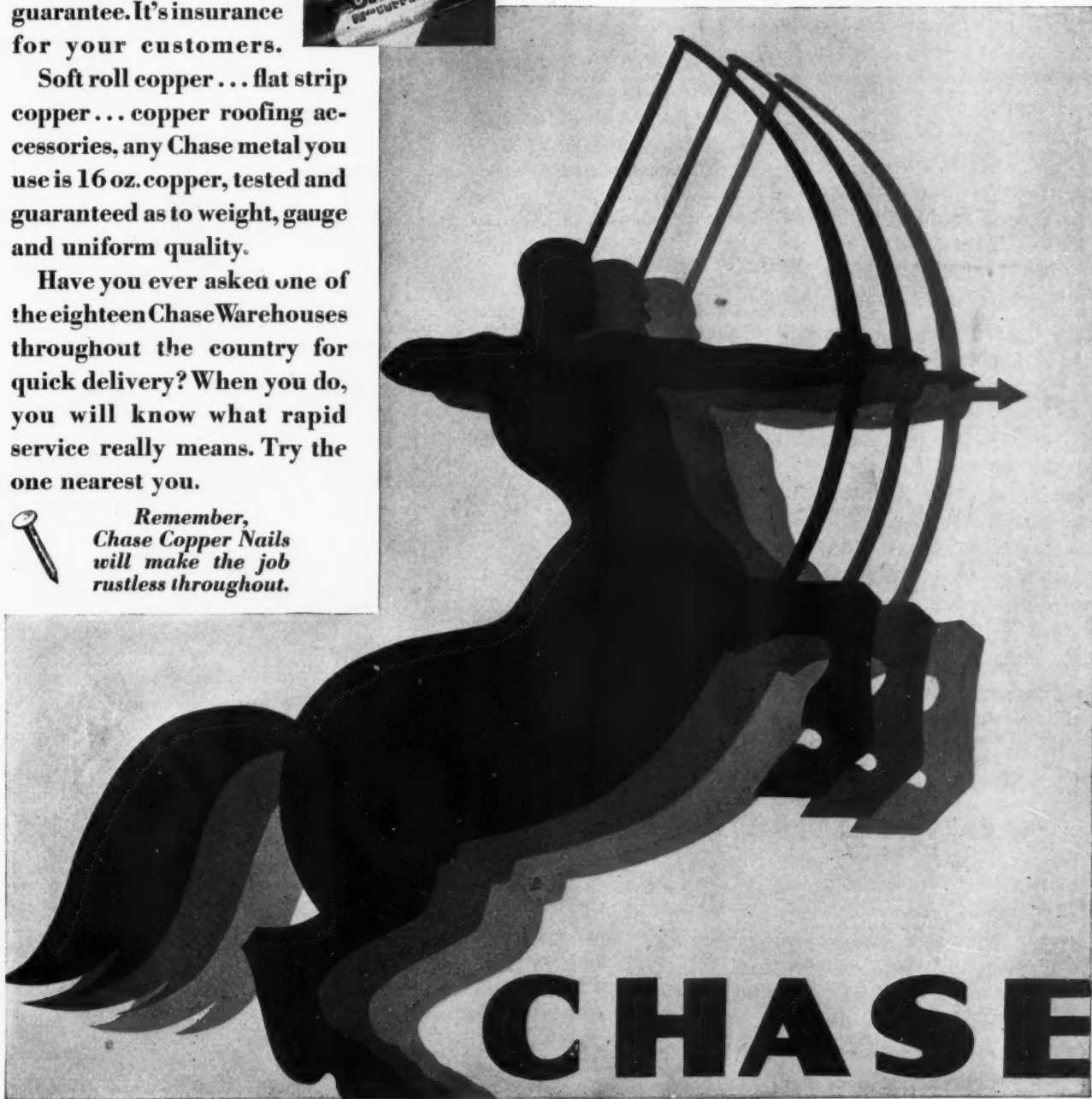
Soft roll copper... flat strip copper... copper roofing accessories, any Chase metal you use is 16 oz. copper, tested and guaranteed as to weight, gauge and uniform quality.

Have you ever asked one of the eighteen Chase Warehouses throughout the country for quick delivery? When you do, you will know what rapid service really means. Try the one nearest you.



*Remember,
Chase Copper Nails
will make the job
rustless throughout.*

Your Assurance of 16 oz. Copper— This Chase-mark



CHASE COPPER LEADERS ▲ GUTTERS ▲ FLASHINGS

A PRODUCT OF CHASE BRASS & COPPER CO.—Incorporated—Waterbury, Conn.

WAREHOUSES—New York... Boston... Newark... Philadelphia... Baltimore... Cincinnati... Cleveland... Detroit... Chicago... St. Louis... New Orleans... Los Angeles... San Francisco... Buffalo... Milwaukee... Minneapolis... Seattle... Oakland... (Also Branch Offices in Pittsburgh and Dallas.) Canadian Rep.: W. E. Booth Co., Ltd., Toronto, Ontario. Mills and Home Office, Waterbury, Connecticut.

Mention AMERICAN ARTISAN in your reply—Thank you!

Hart Oil Burner Corporation Elects Officers and Directors

At a recent stockholders' meeting of the Hart Oil Burner Corporation, Peoria, Ill., following directorate and officers were elected: L. A. Welch, president and director; Geo. L. Luthy, vice-president and director; R. S. Bohn, vice-president and director; L. V. Tefft, vice-president and director; J. Paul Schnellbacher, director; F. G. Cowan, secretary and treasurer.

In addition to his duties as president, Mr. Welch assumes the general management of the company. R. S. Bohn is president of Preferred Utilities Company of New York, and Mr. Luthy, vice-president of the Merchants and Illinois National Bank of Peoria.

In December, 1929, a change in the corporate name of the company from Preferred Oil Burners, Inc., to Hart Oil Burner Corporation was announced. This change was made in order that the company title would more clearly signify the name Hart oil burner which the company has manufactured for nearly eight years.

Linde Publishes Handbook on Pipe Welding

The Linde Air Products Company, New York City, has just issued a very complete handbook on pipe welding. The book is not intended as a text, but presents under one cover facts pertinent to and the advantages of the oxy-acetylene process for the fabrication of steel and wrought iron piping systems.

There are eight chapters in the book. The first three are of a general nature and explain the materials needed, the design and layout of joints, the technique of welding, and a number of practical hints for doing welding.

The remaining five chapters take up in detail the different fields of welding. Cutting the patterns, joining materials and how to weld each type of job are explained in detail and illustrated by drawings.

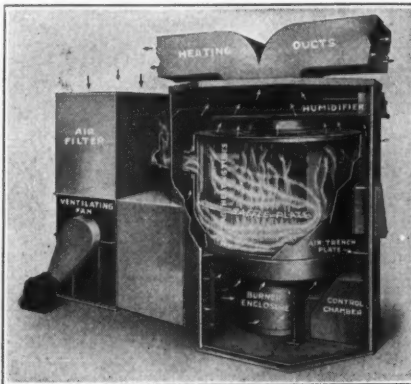
Kelsey Heating Co. Issues New Broadside on "ConditionAire"

The Kelsey Heating Company, Syracuse, N. Y., have just published a new direct mail broadside explaining their new gas fired "ConditionAire" unit.

The broadside is laid out along the lines of the now popular "giant" folders. The pages show some typical installations and also explanatory drawings and descriptions of the units which go together to form the "ConditionAire."

The manufacturers state—

"The ConditionAire is a development from the Kelsey Warm Air Generator which has been used with artificial and natural gas for years. It is provided, however, with a Bun-



sen type gas burner which we have found to be very economical in the use of gas, either artificial or natural. It also has a humidifier, placed in the warm air chamber of the heater, octagon housing—metal panel construction—with attractive colors; Silentaire Fan with automatic controls, safety pilots, pressure gauges, fiber air filters, or spray air filter. Any or all of these portions are included with the complete ConditionAire as may be required by the individual installation.

American Rolling Mill Men to Install U. S. Methods in England

Five of The American Rolling Mill Company's well known operating men will sail for England, early in March. They will supervise operations in the new Armco Unit, the Specialty steel division of the John Summers & Sons Co., Ltd., Shotton Works of Shotton, Chester.

Rock Island Register Co. Announces New Representative in Chicago

The Rock Island Register Company, Rock Island, Illinois, announces that Mr. Dewitt Van Evera, formerly with Carr Supply Co., has been appointed special sales representative for Chicago territory.

He has established an office and sales room at 32 North State Street, Room 503, Chicago. In connection with the office he will maintain a display of the company's line of registers.

A. J. Gloyd Appointed Sales Manager of Armco International

A. J. Gloyd, assistant to the Vice President and Managing Director of Armco International Corporation, in addition to his present duties has been appointed manager of sales for the corporation. He will be responsible both for business in the corporation's American made products, and also for increasing its sales of licensee products as produced abroad.

Mr. Gloyd was born near Dennison, Ohio, in 1887. Leaving O. S. U. preparatory school in 1903, he spent several years in this country and abroad, later engaging in the sheet metal business at McDonald, Pennsylvania.



A. J. Gloyd

THE IMPROVED HYRO "UNXLD" DAMPER QUADRANT



Patented
Dec. 23, 1919—No. 1,326,096

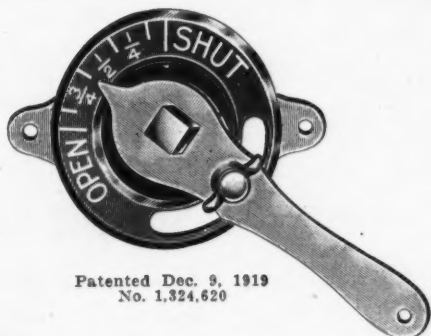
A New Quadrant for regulating dampers in hot and cold air ducts, blower systems, etc., with these improvements:

LARGER BEARING SURFACE. The new type quadrant provides a much larger bearing surface for the rod, eliminating the possibility of the rod slipping out, and also does away with the objectionable rattling of the damper.

MALLEABLE IRON HANDLE. The handle of the new quadrant is made of malleable iron. It is more rigid than the old handle and makes a much neater installation.

REDESIGNED FRAME. The frame of the $\frac{3}{8}$ " quadrant is smaller than that of the old model. This size was determined to be the most practical for regulating dampers that require a $\frac{3}{8}$ " quadrant. The frame of the $\frac{1}{2}$ " quadrant will remain the same size.

HYRO DIAL DAMPER REGULATOR



Patented Dec. 9, 1919
No. 1,324,620

Here is another practical and efficient device for regulating small and medium size dampers in hot and cold air ducts, blow-pipes, etc. It was designed to meet the demand for a less costly damper regulator than our "Unxld" Damper Quadrant.

The Hyro Dial Damper Regulator is of very simple construction. It is easily and quickly attached to either curved or flat surfaces. It requires only two bolts or rivets to hold it absolutely rigid.

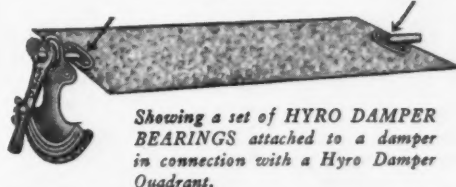
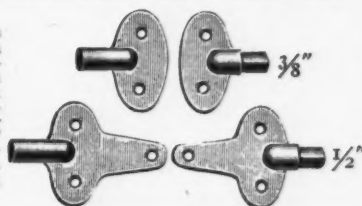
The graduated dial shows at a glance the exact position of the damper in the duct.

When tightened, the wing-nut locks the damper in the desired position, giving absolute control of the passage of air.

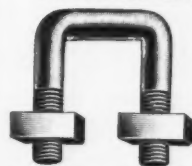
Made of steel to fit $\frac{3}{8}$ " square rod or Hyro Damper Bearings. Furnished in an electro-galvanized finish only.

HYRO DAMPER BEARINGS

Used instead of rods on small and medium size dampers. Quickly attached. Made in two sizes— $\frac{3}{8}$ " to fit $\frac{3}{8}$ " Damper Quadrants or Dial Damper Regulators and $\frac{1}{2}$ " to fit $\frac{1}{2}$ " Damper Quadrants. Furnished in galvanized finish only.



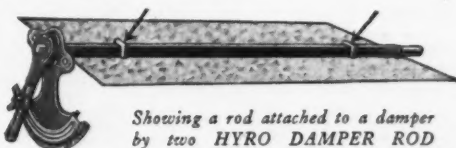
HYRO DAMPER ROD CLIP



Patented April 4, 1922
No. 1,411,945

Offers a quick and easy means of fastening square rod to dampers.

Easy, because the rod is fastened firmly to the damper without drilling—and consequent weakening of the rod. And quick, because the drilling operation is eliminated. Made for the following sizes of square rod: $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " and $\frac{7}{8}$ ". Furnished in galvanized finish only.



Other HYRO Time-and-Labor Saving DAMPER ACCESSORIES

HYRO MANUFACTURING COMPANY, Inc.
202 VARICK STREET NEW YORK

When writing mention AMERICAN ARTISAN—Thank you!

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected bi-weekly

Note: These Prices Are Chicago Warehouse Prices of Metal, to Which Must Be Added Freight to Cities Outside of Chicago

METALS

PIG IRON

Chicago Fdy., No. 2	\$20 00
Southern Fdy. No. 2	21 51
Lake Superior Charcoal	27 04
Malleable	20 00

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC 20x28 112 sheets	\$22 50
IX 20x28 112 sheets	25 50
IXX 20x28 56 sheets	14 50
IXXX 20x28	15 50
IXXXX 20x28	17 00

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	Per Box \$26 70
IX 20x28, 40-lb. 112 sheets	29 70
IC 20x28, 25-lb. 112 sheets	22 20
IX 20x28, 25-lb. 112 sheets	25 20
IC 20x28, 20-lb. 112 sheets	20 25
IV 20x28, 20-lb. 112 sheets	23 00

"ARMCO" INGOT IRON PLATES

No. 8 ga.—100 lbs.	\$4 15
3/16 in.—100 lbs.	4 05
1/4 in.—100 lbs.	3 85

COKE PLATES

Cokes, 80 lbs., base, 20x28	\$12 00
Cokes, 90 lbs., base, 20x28	12 20
Cokes, 100 lbs., base, 20x28	12 40
Cokes, 107 lbs., base, IC	12 75
Cokes, 135 lbs., base, IX	14 75
Cokes, 155 lbs., base, 2X	8 50
Cokes, 175 lbs., base 3X,	9 35
Cokes, 195 lbs., base 4X,	10 25

BLUE ANNEALED SHEETS

Base 10 ga.—per 100 lbs.	\$3 35
"Armco" 10 ga.—per 100 lbs.	4 15

ONE PASS COLD ROLLED BLACK

No. 18-20	per 100 lbs. \$3 85
No. 22	per 100 lbs. 4 00
No. 24	per 100 lbs. 4 05
No. 26	per 100 lbs. 4 15
No. 27	per 100 lbs. 4 20
No. 28	per 100 lbs. 4 30
No. 29	per 100 lbs. 4 45
No. 30	per 100 lbs. 4 55

"ARMCO" GALVANIZED

"Armco" 24.—per 100 lbs.	\$6 10
--------------------------	--------

GALVANIZED

No. 16	per 100 lbs. \$4 40
No. 18	per 100 lbs. 4 55
No. 20	per 100 lbs. 4 70
No. 22	per 100 lbs. 4 75
No. 24	per 100 lbs. 4 90
No. 26	per 100 lbs. 5 15
No. 27	per 100 lbs. 5 25
No. 28	per 100 lbs. 5 40
No. 30	per 100 lbs. 5 80

BAR SOLDER

Warranted 50-50 per 100 lbs.	\$28 00
48-52	per 100 lbs. 27 00
45-55	per 100 lbs. 24 50
Plumbers'	per 100 lbs. 23 00

ZINC

In Slabs	\$7 35
----------	--------

SHEET ZINC

Cask Lots (600 lbs.)	\$12 00
Sheet Lots	14 00

BRASS

Sheets, Chicago base	24 1/2 c
Mill base	23 1/2 c
Tubing, brazed, Chicago base	31 1/2 c
Mill base	30 1/2 c
Tubing, seamless, Chicago base	29 1/2 c
Mill base	28 1/2 c
Wire, Chicago base	24 1/2 c
Mill base	23 1/2 c
Rods, Chicago base	22 1/2 c
Mill base	21 1/2 c

COPPER

Sheets, Chicago base	27 1/2 c
Mill base	26 1/2 c
Tubing, seamless, Chicago base	30 1/2 c
Mill base	29 1/2 c
Wire, plain rd., 8 B. & S. Go.	25 1/2 c
and heavier	25 1/2 c

LEAD

American Pig	\$7 00
Bar	8 00

TIN

Bar Tin	per 100 lbs. \$46 00
Pig Tin	per 100 lbs. 45 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16	.6c per lb.
Roll board	7 1/2 c per lb.
Mill board 3/32 to 1/2	7 1/2 c per lb.
Corrugated paper (250 sq. ft. to roll)	\$6 00 per roll

ASBESTOS SEGMENTS

8 in.	per 100 sets \$7 30
9 in.	per 100 sets 8 30
10 in.	per 100 sets 9 30
12 in.	per 100 sets 10 50

BRUSHES

Furnace Pipe Cleaning	
Bristle with handle, each	\$0 75
Flue Cleaning	
Steel only, each	1 25

CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$4 40
American Seal, 10-lb. cans, net	8 00
American Seal, 25-lb. cans, net	2 00
Pecora	per 100 lbs. 7 50

CHIMNEY TOPS

Adams' Revolving	
Wt. Doz.	Price Doz.
4 in.	21 lbs. \$11 00
6 in.	24 lbs. 11 50
7 in.	30 lbs. 13 50
8 in.	33 lbs. 15 00
9 in.	31 lbs. 16 50
10 in.	56 lbs. 18 00
12 in.	66 lbs. 22 00
14 in.	110 lbs. 36 00

CLINKER TONGS

Each	\$1 50
------	--------

CLIPS

Damper	
No-Rivet Steel, with tail	
pieces, per gross	\$9 50
Rivet Steel, with tail	
pieces, per gross	7 50
Tail pieces, per gross	2 40

COPPERS—Soldering

Pointed Roofing	
3 lb. and heavier	per lb. 40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 48c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES

Chicago Steel Bending	
Nos. 1 to 6B	Net

CUT-OFFS

Gal., plain, round or cor. rd.	
26 gauge	30%
28 gauge	35%

DAMPERS

Yankee Hot Air	
7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

ADAMS No. 1 CHECK

Check and Collar Complete	
8 inch, each	2 00
9 inch, each	2 25

End Check Only

8 inch, each	1 60
9 inch, each	1 85
Collar Only	
8 inch, each	50
9 inch, each	65

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00
10% Disc. on Adams No. 1	

and No. 2 Check

Diamond Smoke Pipe	
7 inch, doz.	\$2 00
8 inch, doz.	3 20
9 inch, doz.	4 80
10 inch, doz.	9 00
Adams' Sheet Metal	
7 inch, doz.	\$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVES TROUGH

Galv. Crimpedge, crated	75-10%
Zinc, "Barnes"	60%

ELBOWS

Conductor Pipe	
Galv. plain or corrugated, round flat Crimp,	
28 gauge	60%
26 gauge	45%
24 gauge	15%
Galv. Terne Steel	
Plain Rd. and Rd. Corr.	
28 gauge	60%
26 gauge	45%
24 gauge	15%

Square Corrugated

28 gauge	50%
26 gauge	35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested solid	70 & 5%
Sq. Corr., A. & B. & Octagon	
28 gauge	50%
26 gauge	35%

Portico

1, 1 1/4, 1 1/2 inch	45%
Copper	
16 oz., all designs	40%

Zinc

All styles	60%
------------	-----

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue	
"Milcor" No. 28 Gauge.	Doz.
5 inch	\$1 15
6 inch	1 25
7 inch	1 75

Special Corrugated

6 inch	\$1 00
7 inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge. Uniform Blue.	
5 inch	\$1 60
6 inch	1 75
7 inch	2 10

WOOD FACES—60% off list.

FENCE

726-6-12 1/4 (100 rods)	\$28 68
1948-6-14 1/4 (100 rods)	43 62

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	50%

FIRE POTS

Geo. W. Diener Mfg. Co.	Each
No. 02 Gasoline Torch, 1 qt.	\$5 13
No. 9250, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 20
No. 15 Tinner's Furn. Round tank, 1 gal.	10 70
No. 21 Gas Soldering Furnace	8 00
No. 110 Automatic Gas Soldering Furnace	10 50

GLASS

Single Strength, A, all brackets	85%
Single Strength, B, all brackets	87%
Double Strength, A, all brackets	85%
Double Strength, B, all brackets	87%

HANGERS

Conductor Pipe	
Milcor Perfection Wire	25%
Milcor Triplex Wire	10%

Eaves Trough

Milcor Steel (galv. after forming) from List	50%
Milcor Selflock E. T. Wire, List	10%

HOOKS

Conductor	
"Direct Drive" Wrought Iron for wood or brick	15%

HUMIDIFIER

"Front-Rank," Automatic	
In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

LIFTERS

Stove Cover	
Coppered	per gro. \$6 00
Alaska	per gro. 4 75

MALLETS

Tinners	
Hickory	per doz. \$2 20

MITRES

Galvanized steel mitres	
28 gauge	70
26 gauge	60-20


NAILS

Cut Steel, base	\$4 00
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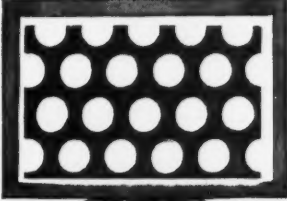
Wire

Common Wire, L. C. L.	2 95
Cement Coated	2 95


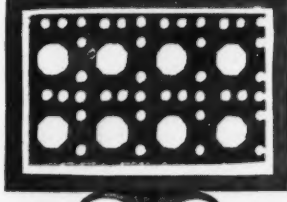
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PERFORATED METALS
OF EVERY SORT
carefully made to your specification



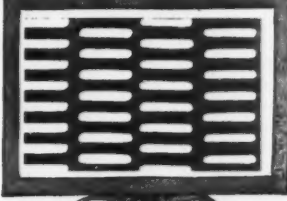
Round Holes All Sizes


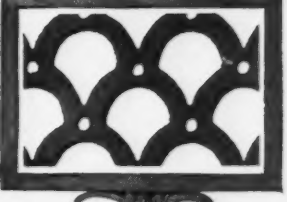
Imitation Cane

Punched Metal Grilles
Register Faces
Ventilators, etc.
Guard Material for
Machinery and Belts

Screens for Grain and
Minerals or Anything
to Be Screened
Perforated Tin and Brass
Always in Stock



Oblong Holes All Sizes

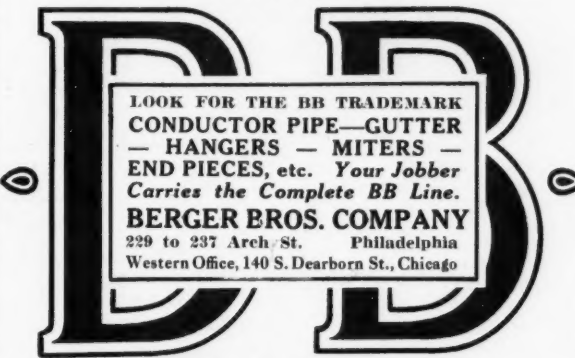



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— HANGERS — MITERS —
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229 to 237 Arch St. Philadelphia
Western Office, 140 S. Dearborn St., Chicago

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Hangers, Etc.

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A child can work them

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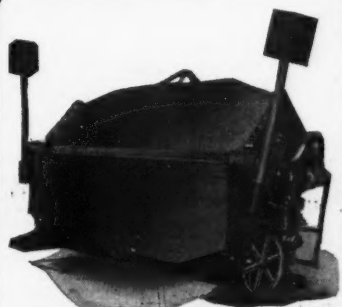
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PASTE	RIDGE ROLL
Asbestos Dry Paste	Galv. Plain Ridge Roll, b'did75-15-5%
200-lb. barrel\$15 00	Galv., Plain Ridge Roll, crated75-15%
100-lb. barrel 7 75	
50-lb. pail 4 50	
25-lb. pail 2 50	
10-lb. bag 1 20	
5-lb. bag 60	
POKERS, FURNACE	SCREWS
Each\$0 75	Sheet Metal
	7, ½ x ¼, per gross.....\$0 52
	No. 10, ¾ x 3/16, per gross 68
	No. 14, ¾ x ¼, per gross.. 83
POKERS, STOVE	SHEARS, TINNERS' & MACHINISTS'
Nickel Plated, coll handles, per doz.\$1 10	Viking\$22 00
W'r't Steel, str't or bent, per doz. 0 75	Lennox Throatless
PIPE	No. 1835%
Conductor	Shear blades10%
Cor. Rd., Plain Rd., or Sq.	(f. o. b. Marshalltown, Iowa)
Galvanized	
Crated and nested (all gauges)75-7½%	
Crated and not nested (all gauges)75-2½%	
Furnace Pipe	
Double Wall Pipe and Fittings50 & 10%	
Single Wall Pipe, Round Galvanized Pipe50 & 10%	
Galvanized and Tin Fit- tings50 & 10%	
Lead	SHIELDS, ADJUSTABLE RADIATOR
Per 100 lbs.....\$12 50	No. 1 "Gem" 11 to 17 inch...30%
Stove Pipe	No. 2 "Gem" 14 to 24 inch...30%
"Milcor" "Titelock" Uniform Blue Stove	No. 3 "Gem" 35 to 65 inch...30%
28 gauge, 5 inch U. C. nested\$11 00	
28 gauge, 6 inch U. C. nested 12 00	
28 gauge, 7 inch U. C. nested 14 00	
30 gauge, 5 inch U. C. nested 10 25	
30 gauge, 6 inch U. C. nested 11 00	
30 gauge, 7 inch U. C. nested 13 00	
T-Joint Made up	
6 inch, 28 ga....per doz. \$3 40	
All Zinc	SHOES
No. 11, all styles.....60%	Galv. 28 Gauge, Plain or Cor- rugated, round flat crimp...60%
	26 gauge, round flat crimp...45%
	24 gauge, round flat crimp...15%
PULLEYS	SNIPS, TINNERS'
Furnace Tackleper doz. \$0 85	Clover Leaf40 & 10%
.....per gro. 8 50	National40 & 10%
Furnace Screw (enameled)per doz. 75	Star50%
	MilcorNet
PUTTY	SQUARES
Commercial Putty, 100-lb. Kits\$3 15	Steel and Iron.....Net
	(Add for bluing \$3 per doz. net)
QUADRANTS	MitreNet
Malleable Iron Damper.....10%	TryNet
	Try and Bevel.....Net
	Try and Mitre.....Net
	Fox'sper doz \$6 00
	Winterbottom's10%
REDUCERS—Oval Stove Pipe	STOPPERS, FLUE
Per Doz.	Commonper doz. \$1 10
7-6, 28-gauge, 1 doz. in carton\$2 00	Gem, No. 1.....per doz. 1 10
	Gem, flat, No. 3....per doz. 1 00
REGISTERS AND FACES	VENTILATORS
Floor Registers	Standard30 to 40%
Except Cast Iron.....40&10%	
Cast Iron20%	
Baseboard	WIRE
2-Piece40&10%	Black annealed wire, No. 9, per 100 lbs.....\$3 30
1-Piece40-10&20%	Galvanized barb wire, per 100 lbs. 3 00
Adjustable Ventilators	Cattle Wire—galvanized catch weight spool, per 100 lbs. 3 85
Adjustable Cold Air Faces 40&10%	Galvanized Plain Wire, No. 9, per 100 lbs..... 3 75
Adjustable Ventilators....40&10%	

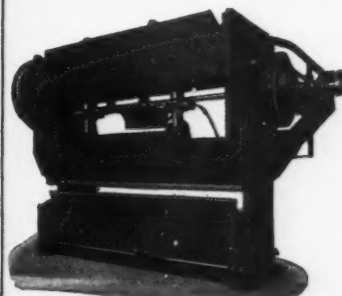
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The perfected result of over 30 years experience in the manufacture of sheet metal bending machines. Over 25,000 machines in use.



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Cornice Brakes
Power Brakes
Box and Pan Brakes
Forming Presses
Special Brakes and Presses



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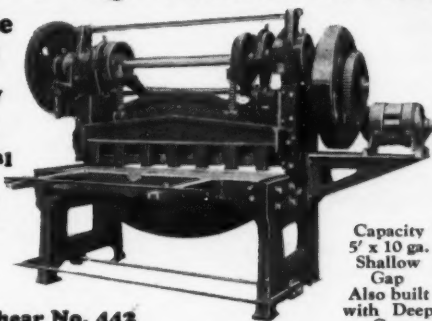
The most complete and up-to-date line of sheet and plate bending and forming machines in the world. Lengths, 3 to 16 feet, with capacity to bend from the lightest metals up to $\frac{3}{4}$ in. plate, cold.

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Our Line
Light and
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Sheet Metal
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Capacity
5' x 10 ga.
Shallow
Gap
Also built
with Deep
Gap

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ÆOLUS Improved Double Syphon Ventilators give 10% more power than formerly according to Armour Institute Tests.

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SHEETS

Ready
to
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Needs
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Heat

SIMPLE

Soldering success is one operation—all you need is heat and Kester. No separate fluxes—the perfect flux is right in the solder. For simpler, surer, sheet metal soldering use Kester Acid-Core Solder. Put up on 1, 5, 10 and 20 pound spools. Write for liberal free sample.

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KESTER FLUX-CORE SOLDER

ACID-CORE ROSIN-CORE PASTE-CORE
METAL WELDING RADIO SOLDER

Mention AMERICAN ARTISAN in your reply—Thank you!

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Air Cleaners.

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Air Conditioning Machines.

Watt Mfg. Co., Sterling, Ill.
Asbestos Paper.
Sall-Mountain Co., Chicago, Ill.

Blast Gates.

Berger Bros. Co., Philadelphia, Pa.

Blowers—Furnace.

Brundage Co., Kalamazoo, Mich.
Lakeside Co., Hermansville, Mich.

Bolts—Stove.

Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Brakes—Bending.

Dreis & Krump Mfg. Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Brakes—Cornice.

Dreis & Krump Mfg. Co., Chicago, Ill.

Brass and Copper.

American Brass Co., Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.
Copper & Brass Research Association, New York, N. Y.
Revere Copper & Brass, Rome, N. Y.

Bronze.

Revere Copper & Brass, Rome, N. Y.

Cans—Garbage.

Diener Mfg. Co., G. W., Chicago, Ill.
Osborn Co., The J. M. & L. A., Cleveland, Ohio

Castings—Malleable.

Fanner Mfg. Co., Cleveland, Ohio

Ceilings—Metal.

Eller Manufacturing Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Chaplets.

Fanner Mfg. Co., Cleveland, Ohio

Cleaners—Vacuum.

Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio

Copper.

American Brass Co., Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.
Revere Copper & Brass, Rome, N. Y.
Rockford Sheet Steel Co., Rockford, Ill.

Cornices.

Eller Manufacturing Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Cut-offs—Rain Water.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Dampers—Quadrants—Accessories.

Eller Mfg. Co., Canton, Ohio
Howes Co., S. M., Boston, Mass.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp., New York, N. Y.

Damper Regulators.

H. M. Sheer Co., Quincy, Ill.

Dies—Punch & Press.

La Salle Machine Works, Chicago, Ill.

Diffuser—Air Duct.

Aeolus-Dickinson Co., Chicago, Ill.

Drills—Electric.

Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Drive Screws—Hardened Metallic.

Parker-Kalon Corp., 200 Varick St., New York

Dust Eliminator.

Dustless Ash Co., Muskegon, Mich.

Eaves Trough.

Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Chase Brass & Copper Co., Waterbury, Conn.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Rockford Sheet Steel Co., Rockford, Ill.

Elbows and Shoes—Conductor.

Barnes Metal Products Co., Chicago, Ill.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Rockford Sheet Steel Co., Rockford, Ill.

Fittings—Conductor.

Barnes Metal Products Co., Chicago, Ill.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Flue Thimbles.

Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Fluxes—Soldering.

Kester Soldering Co., Chicago, Ill.

Furnace Cement.

Connors Paint Mfg. Co., Wm., Troy, N. Y.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Furnace Cement—Liquid.

Technical Products Co., Pittsburgh, Pa.

Furnace Paste.

Larsen-Bennett Co., Omaha, Neb.

Furnace Cleaners—Suction.

Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio
Williamson Heater Co., Cincinnati, Ohio

Furnace Fans.

American Foundry & Furnace Co., Bloomington, Ill.
A-C Mfg. Co., The, Pontiac, Ill.
Brundage Co., Kalamazoo, Mich.
Lakeside Co., Hermansville, Mich.
A. H. Robinson Co., Massillon, Ohio
Watt Mfg. Co., Sterling, Ill.

Furnace Regulators.

H. M. Sheer Co., Quincy, Ill.

Furnace Rings.

Eller Mfg. Co., Canton, Ohio
Forest City-Walworth Run Foundries Co., Cleveland, Ohio
Milwaukee Corrugating Co., Milwaukee, Wis.

Furnace Switch—Automatic.

Payne Furnace & Supply Co., Beverly Hills, Cal.
A. H. Robinson Co., Massillon, Ohio

Furnaces—Gas.

Payne Furnace & Supply Co., Beverly Hills, Cal.
A. H. Robinson Co., Massillon, Ohio
Rudy Furnace Co., Dowagiac, Mich.

Furnaces—Warm Air.

Agricola Furnace Co., Gadsden, Ala.
American Foundry & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis, Mo.
Brillion Furnace Co., Brillion, Wis.
Emrich Co., C., Columbus, Ohio
Farris Furnace Co., Springfield, Ill.
Forest City-Walworth Run Fdy., Cleveland, Ohio
Fox Furnace Co., Elyria, Ohio
Henry Furnace & Fdy. Co., Cleveland, Ohio
Hess Warming & Ventilating Co., Chicago, Ill.
Langenberg Mfg. Co., St. Louis, Mo.
London Furnace Co., London, Ohio
May Flebeger Furnace Co., Newark, Ohio
Meyer Furnace Co., The, Peoria, Ill.
Midland Furnace Co., Columbus, Ohio
Payne Furnace & Supply Co., Beverly Hills, Cal.
Premier Warm Air Heater Co., Dowagiac, Mich.
Peerless Foundry Co., Indianapolis, Ind.
Richardson & Boynton Co., New York, N. Y.
Robinson Co., A. H., Massillon, Ohio
Standard Fdy. & Furnace Co., De Kalb, Ill.
Success Heater Mfg. Co., Des Moines, Ia.
Western Steel Products Co., Duluth, Minn.
Wise Furnace Co., Akron, Ohio

Gas Burning Attachments.

Munkel-Rippel Heating Co., Columbus, Ohio

Grilles.

Auer Register Co., Cleveland, Ohio
Harrington & King Perforating Co., Chicago, Ill.
Hart & Cooley Co., New Britain, Conn.
Highton & Sons, Wm., Nashua, N. H.
Independent Register & Mfg. Co., Cleveland, Ohio

Guards—Machine and Belt.

Harrington & King Perforating Co., Chicago, Ill.

Handles—Boiler.

Berger Bros. Co., Philadelphia, Pa.

Handles—Soldering Iron.

Hyo Mfg. Co., New York, N. Y.

Handles—Furnace Door.

Fanner Mfg. Co., Cleveland, Ohio

Hangers—Eaves Trough.

Berger Bros. Co., Philadelphia, Pa.
Chase Brass & Copper Co., Waterbury, Conn.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Heat Regulation Systems.

Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
H. M. Sheer Co., Quincy, Ill.

Heaters—Cabinet.

Fox Furnace Co., Elyria, Ohio

Heaters—Combination Hot Water.

Alamo Heater Co., Chicago, Ill.
Standard Fdy. & Furnace Co., De Kalb, Ill.

Heaters—Domestic Hot Water.

Alamo Heater Co., Chicago, Ill.
Standard Fdy. & Furnace Co., De Kalb, Ill.

Heaters—School Room.

Meyer Furnace Co., The, Peoria, Ill.
Western Steel Products Co., Duluth, Minn.

Hotels.

Fort Shelby Hotel, Detroit, Mich.

Humidifiers.

Diener Mfg. Co., G. W., Chicago, Ill.
Meyer & Bro. Co., F., Peoria, Ill.
H. M. Sheer Co., Quincy, Ill.
Watt Mfg. Co., Sterling, Ill.

Lath—Expanding Metal.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Machines—Crimping.

Bertsch & Co., Cambridge City, Ind.

Machinery—Culvert.

Bertsch & Co., Cambridge City, Ind.

Machines—Tinsmith's.

Bertsch & Co., Cambridge City, Ind.
Dreis & Krump Mfg. Co., Chicago, Ill.
Hyo Mfg. Co., New York, N. Y.
Interstate Machinery Co., Chicago, Ill.
La Salle Machine Works, Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Ia.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Metals—Perforated.

Harrington & King Perforating Co., Chicago, Ill.

Miters.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Miters—Eaves Trough.

Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Nails—Copper & Brass.

Chase Brass & Copper Co., Waterbury, Conn.
Revere Copper & Brass, Rome, N. Y.

(Continued on page 56)



The "Torrid" Furnace is designed to give a tremendous amount of heat, much more than that furnished by the ordinary tinner's furnace.

A fuel saver and generating machine of the finest quality made at the price.

GEO. W. DIENER MFG. CO.
404 N. Monticello Ave. CHICAGO

To help you make more money

IN your busy season and in your dull season you will always find technical articles and merchandising stories in American Artisan which will help you make your business more profitable.

You can learn how other men sell more and better warm air heating installations—

You can acquaint yourself with the methods other men use in the sheet metal business to avoid making costly mistakes in estimating sheet metal contracts.

Read this issue of American Artisan—read every issue and be better prepared to *make more money.*

MARSHALLTOWN

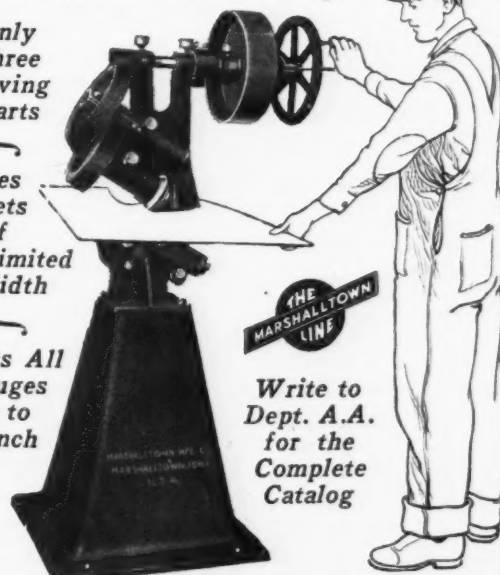
Rotary Throatless Shears

The favorite in thousands of shops

Only
Three
Moving
Parts

Takes
Sheets
of
Unlimited
Width

Cuts All
Gauges
up to
1/2 inch



Write to
Dept. A.A.
for the
Complete
Catalog

JUST mark up your sheet—this machine will cut it whether straight cuts or curves of any kind as desired. It handles sheets of all widths and all gauges up to 1/2 in. Simple, durable and high grade in all respects. The blades are made of finest steel and last for many months even with the most severe service. Hand or power operated it saves much time, money and material. It does not cost much—your shop needs it. Write for full details today.

MARSHALLTOWN MANUFACTURING CO.
Marshalltown, Iowa

TWO TAYLOR'S BRANDS

to Tie to

First in the minds of sheet metal men is our famous **HAND MADE** roofing tin—the highest quality, longest lived roofing tin in the world, the old "TAYLOR'S" Old Style, known since 1905 by the new name.



Now we have gotten out a New Tin, but the best machine made plate ever produced, for those who want to pay less. This is known as

**Taylor's Extra Coated
40 lb. Copper Bearing O. H.**

Ample stocks carried by all distributors,
Ask them for TAYLOR'S.

N. & G. TAYLOR COMPANY
CUMBERLAND, MARYLAND

Headquarters for Good Roofing Tin Since 1810

BUYERS' DIRECTORY

(Continued from page 54)

Nails—Hardened Masonry.
Parker-Kalon Corp.,
New York, N. Y.

Oil Burners.
McIlvaine Burner Corp.,
Evanston, Ill.

Ornaments—Sheet Metal.
Eller Mfg. Co., Canton, Ohio
Miller & Doing, Inc.,
Brooklyn, N. Y.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Paint.
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Perforated Metals.
Harrington & King Perforating
Co., Chicago, Ill.

Pipe and Fittings—Furnace.
Eller Mfg. Co., Canton, Ohio
Henry Furnace & Fdy. Co.,
Cleveland, Ohio
Lamneck Co., W. E.,
Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland Ohio
Peerless Foundry Co.,
Indianapolis, Ind.

Pipe and Fittings—Stove.
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Pipe—Conductor.
Barnes Metal Products Co.,
Chicago, Ill.

Punches.
Berger Bros. Co.,
Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Presses.
La Salle Machine Works,
Chicago, Ill.

Pipe Covering.
Sall Mountain Co., Chicago, Ill.

Punches.
Bertsch & Co.,
Cambridge City, Ind.
Interstate Machinery Co.,
Chicago, Ill.
La Salle Machine Works,
Chicago, Ill.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Punches—Combination Bench and Hand.
Hyro Mfg. Co., New York, N. Y.

Punches—Hand.
Hyro Mfg. Co., New York, N. Y.

Putty—Stove.
Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Radiator Cabinets.
The Hart & Cooley Mfg. Co.,
New Britain, Conn.

Registers—Warm Air.
Auer Register Co.,
Cleveland, Ohio
Eller Mfg. Co., Canton, Ohio
Forest City-Walworth Run
Foundries Co., Cleveland, Ohio
Hart & Cooley Co.,
New Britain, Conn.
Henry Furnace & Fdy. Co.,
Cleveland, Ohio
Independent Register & Mfg.
Co., Cleveland, Ohio
Lamneck & Co., W. E.,
Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Rock Island Register Co.,
Rock Island, Ill.
Symonds Register Co.,
St. Louis, Mo.

Registers—Wood.

American Wood Register Co.,
Plymouth, Ind.
Auer Register Co.,
Cleveland, Ohio
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Regulators—Heat.

H. M. Sheer Co., Chicago, Ill.

Ridging.

American Rolling Mill Co.,
Middletown, Ohio
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Rivets—Stove.

Lamson & Sessions Co.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Rods—Stove.

Lamson & Sessions Co.,
Cleveland, Ohio

Rolls—Forming.

Bertsch & Co.,
Cambridge City, Ind.

Roofing Cement.

Connors Paint Mfg. Co., Wm.,
Troy, N. Y.

Roof—Flashing.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Milwaukee, Wis.

Roofing—Iron and Steel.

American Rolling Mill Co.,
Middletown, Ohio
Central Alloy Steel Corp.,
Massillon, Ohio
Eller Mfg. Co., Canton, Ohio
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Roofing—Tin.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Taylor Co., N. & G.,
Philadelphia, Pa.

Rubbish Burners.

Hart & Cooley Co.,
New Britain, Conn.

Schools—Sheet Metal Pattern Drafting.

St. Louis Technical Institute,
St. Louis, Mo.

Schools—Warm Air Heating.

St. Louis Technical Institute,
St. Louis, Mo.

Screws—Hardened Metallic Drive.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp.,
200 Varick St., New York

Screws—Hardened Self-Tapping, Sheet Metal.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp.,
200 Varick St., New York

Screens—Perforated Metal.

Harrington & King Perforating
Co., Chicago, Ill.

Shears—Hand and Power.

Interstate Machinery Co.,
Chicago, Ill.
Marshalltown Mfg. Co.,
Marshalltown, Ia.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.
Viking Shear Co., Erie, Pa.

Sheet Metal Screws—Hardened, Self-Tapping.

Parker-Kalon Corp.,
200 Varick St., New York

Sheets—Alloy.

Central Alloy Steel Co.,
Massillon, Ohio
International Nickel Co.,
New York, N. Y.

Sheets—Black and Galvanized.

American Rolling Mill Co.,
Middletown, Ohio
Central Alloy Steel Corp.,
Massillon, Ohio
Eller Mfg. Co., Canton, Ohio
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Rockford Sheet Steel Co.,
Rockford, Ill.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.
Taylor Co., N. & G.,
Philadelphia, Pa.

Sheets—Iron.

American Rolling Mill Co.,
Middletown, Ohio
Central Alloy Steel Corp.,
Massillon, Ohio
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Sheets—Tin.

Taylor Co., N. & G.,
Philadelphia, Pa.

Shingles and Tiles—Metal.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Sifters—Ash.

Diener Mfg. Co., G. W.,
Chicago, Ill.

Sky Lights.

Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Smoke Pipe—Cast Iron.

Waterloo Register Co.,
Waterloo, Ia.

Snips.

Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Solder—Acid Core.

Kester Solder Co., Chicago, Ill.

Solder—Self-Fluxing.

Kester Solder Co., Chicago, Ill.

Solder—Rosin Core

Kester Solder Co., Chicago, Ill.

Solder.

Eller Mfg. Co., Canton, Ohio
Kester Solder Co., Chicago, Ill.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Soldering Coppers.

Revere Copper & Brass,
Rome, N. Y.

Soldering Furnaces.

Diener Mfg. Co., G. W.,
Chicago, Ill.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Specialties—Hardware.

Diener Mfg. Co., G. W.,
Chicago, Ill.

Stars—Hard Iron Cleaning.

Fanner Mfg. Co., Cleveland, Ohio

Statuary.

Miller & Doing, Inc.,
Brooklyn, N. Y.

Stove Pipe Reducers.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Tinplate.

Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Taylor Co., N. & G.,
Philadelphia, Pa.

Tools—Tinmith's.

Bertsch & Co.,
Cambridge City, Ind.
Dries & Krump Mfg. Co.,
Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Interstate Machinery Co.,
Chicago, Ill.
Osborn Co., The J. M. & L. A.,
Cleveland, Ohio
Rockford Sheet Steel Co.,
Rockford, Ill.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.
Viking Shear Co., Erie, Pa.

Torches.

Diener Mfg. Co., G. W.,
Chicago, Ill.
Ryerson & Son, Inc., Jos. T.,
Chgo., N. Y., St. L., Det., Cleve.

Trade Extension.

Copper & Brass Research Associ-
ation
Sheet Steel Trade Extension
Committee, Cleveland, Ohio

Trimnings—Stove and Furnace.
Fanner Mfg. Co., Cleveland, Ohio

Vacuum Cleaner—Furnace.

Brillion Furnace Co.,
Brillion, Wis.
National Super Service Co.,
Toledo, Ohio

Ventilators.

Aeolus Dickinson Co., Chicago, Ill.
Berger Bros. Co.,
Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David,
Philadelphia, Pa.
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Ventilators—Ceiling.

Hart & Cooley Co.,
New Britain, Conn.
Henry Furnace & Fdy. Co.,
Cleveland, Ohio

Windows—Steel.

Lupton's Sons Co., David,
Philadelphia, Pa.

Wood Faces—Warm Air.

Auer Register Co.,
Cleveland, Ohio
American Wood Register Co.,
Plymouth, Ind.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co.,
Mil., Chgo., La Crosse, Kan. City

Say you saw it in AMERICAN ARTISAN—Thank you!

WANTS AND SALES

Yearly subscribers to the AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE for three insertions.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired and must reach our office ten days prior to date of publication. This privilege is not extended to manufacturers or jobbers—or those making a business of buying and selling used machines—employment agencies and brokers.

When sending advertisement state whether your name or blind number is to be used.

BUSINESS CHANCES

Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wis.

Let me hear from owner of hardware store with tin shop in connection, who is willing to sell part interest in business. I am a sheet metal furnace man 35 years old with family. Or, let me hear from a hardware dealer who has need of competent sheet metal and furnace man for year around work. Address S-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For sale in small town in eastern Iowa. Hardware, plumbing and tinning shop. Not much competition. Best schools and churches and a fine community with good prospects. Have two other stores and cannot handle all is my reason for selling. Three to four thousand dollars will handle the deal. Address W-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

FOR SALE—Hardware business in city of 5,000 in dairy belt of Southern Wisconsin. A good going business must be sold to settle estate. Heating and plumbing shop in connection, will sell all or part. Will consider partner. Investigate at once if you want a good paying business. Address O-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Sheet metal and furnace business including truck, tools, stock, house, lot and garage in Ohio town of over 50,000 population. Good income. Property in fine location. Business established 28 years. Age and ill health is reason for selling. Will sell business only or all. Address W-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Old established sheet metal shop with tools in rich farming town of 4,000 on main street. Plenty of work the year around. Can't handle it on account of health and other business relations. Can arrange time for responsible parties. If interested write for particulars. Address C. C. Coon, Wauseon, Ohio. X-515

For Sale—Well equipped sheet metal shop in the best city in southern Illinois. 12,000 population. Sickiness compels me to sell. Don't overlook this opportunity. Address K-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

BUSINESS CHANCES

For Sale—Heating, plumbing and sheet metal business in county seat town of 6,000 within 50 miles of Kansas City, Mo. Small stock, plenty work at good prices. Selling, as I have other business to attend to. Address P-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale in Chicago—Well established, good paying general sheet metal, furnace and roofing shop in excellent location with stock and full equipment. Several years in this location. Will sell at reasonable price, or exchange. Address R-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Would like to get in touch with a practical man at the metal trades as active partner with small capital in a town of 60,000. Good opportunity for two hustlers. Address S-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Well equipped sheet metal and plumbing business in north central Indiana. Fine farming community. Must sell on account of ill health. Address A. B. Cripe, Camden, Indiana. R-514

SITUATION WANTED

Position wanted by man with Illinois plumber's license who can do all kinds of plumbing work, large or small. Can also do steam, vapor, hot water and hot air heating. Furnish best references. Can invest \$1,000.00 in good paying business. Illinois town of 5,000 to 25,000 preferred. Don't answer unless you have something that will bear investigation. Address F-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Young man with seven years' experience in general sheet metal work and furnace installation desires sales position with manufacturer or jobber. Willing to start in minor position in order to get a thorough knowledge of the service you render. Graduate of the National Salesman's Training Association. Address Z-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Illinois.

Situation Wanted by a thorough mechanic on the better class of sheet metal work such as layout, engineering and making cornice, skylight, ventilation, blow pipe, etc. Will go anywhere. Married, sober, steady, neat and accurate. 30 years' experience. Foreman for 18 years. A-1 references. State particulars fully to S. M. Worker, 1210 S. Monroe St., Muncie, Indiana. G-516

Having that rare combination of salesman and engineer in warm air heating service to the customers and realizing there is a change coming over the industry and the concerns having the largest number of satisfied customers are going to hold their own. I am prepared to render that kind of service. Address F-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation wanted by A-1 furnace installer and metal worker. Sixteen years experience on forced and gravity air heating, thorough knowledge of air travel, air pockets, etc. Have practical solution for almost any trouble that may arise. Fast and accurate. Might consider buying or renting small tin shop. Address E. A. Landis, 917 Marion St., Reading, Pa. S-515

Young man 32 years of age desires permanent connection with reliable furnace company. Has had nine years' experience in the furnace business covering all phases including manufacturing, selling and handling of correspondence. Can furnish best of references. Address A-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation wanted by all around capable sheet metal worker, lay out, assemble and correct any branch of same, work from blue prints, also acetylene welding, and electric spot welding. 33 years old, best of health. Not afraid of work. Address Tinner, 70 Ehrman Ave., Cincinnati, Ohio. T-515

This office can furnish the name of a man with exceptional ability along the plumbing and heating lines who can furnish the best of references. Address E-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago.

SITUATION WANTED

Salesman calling on furniture and hardware department store trade in Chicago and suburbs wants line of stove pipe, stove boards and stove rests to sell to above dealers on commission basis. A-1 references. Address E-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Man thoroughly versed, with extraordinary experience in engineering and selling of up-to-date warm air heating, open to negotiate for position with manufacturer or contracting concern at once. Address D-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

A competent furnace man wants a position as furnace installer or salesman. Over 20 years of experience. Strictly sober and reliable, able to handle this line of work and can give A-1 references. Address R-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Combination Plumber and sheet metal worker. Twenty years' experience—five years as foreman. 40 years of age and steady worker. Have selling experience. Prefer small city. \$1.00 per hour. Address Y-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Expert layoutman, shop foreman and estimator wishes connection with reliable sheet metal firm. Age 36 years—23 years' experience has given me knowledge at all lines the trade requires. Address O-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation Wanted: By all around sheet metal worker. Can handle any branch of the trade such as a cornice, skylight, ventilation, and hot air heating. Can make estimates and take charge of shop. Write T. W. Babb, 1125 N. St. Francis St., Wichita, Kansas. D-516

Young man with fan heating and ventilating experience, able to take charge of shop or erect work. Wants position with concern making a business of fan heating. Will go anywhere. Address B-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Situation wanted by A-1 combination man. Have had 18 years of experience, can lay out own patterns in sheet metal, handle hot air, hot water and steam heat. Married. Address L. C. Stoakes, Anamosa, Iowa. C-515

HELP WANTED

Wanted—Combination warm air, hot water and steam heat; honest, industrious, steady man. Must furnish best references. Good wages and steady work for the right man. State wages expected in first letter. Address Success Heating Co., Chippewa Falls, Wisconsin. A-516

Wanted—Salesman to cover Chicago territory, to sell high grade line of metal warm air registers. Liberal proposition. For details address F-515, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

TOOLS AND MACHINES

Wanted—One spot welding outfit in good condition. Will pay Cash. Address H. A. Duncan, Ventura, Cal. H-516
For Sale—1-54" slip roller—3" rolls. Peck Stow and Wilcox make. Address Wm. Serres, Algonquin, Ill. J-516

For Trade—One 30-in. squaring shears in good condition for other tools. Can use serpentine shear, welding outfit or Whitney punch. Address J. M. Prall, 405 West Fifth St., Oklahoma City, Okla. Y-514
MISC

For Sale—The following tools in A-1 shape. One 30-in. foot power shears, \$35.00. One Standard beading machine with Standard, \$15.00. F. o. b., Red Wing. Address Wm. A. Meyer, Red Wing, Minn. Y-515

Wanted—One 36 or 48" cut Gap Squaring Shear with 18" gap for 16 ga. steel like No. XC-36-Pexto—Ohl or Bertsch make. Address M-516, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Wanted—1-30" hand corrugated roller. Must be in good condition. Address Box 1402, Corpus Christi, Texas. K-516

TOOLS AND MACHINES

For Sale—Good ten-foot steel brake, and Chicago elbow machine, with jigs for four-piece elbow V.I.Z. 7-8-9-10-12-14-16-18-inch, in good condition. Address Milton Rogers & Sons Co., Omaha, Nebr.

M-515

Wanted—One used rotary or throatless shear to fasten on bench hand, operated for 18 ga. and lighter. In quoting, state make and condition. Address Frederick H. Lord, Belle Haven, Va. X-514

For Sale—Power conductor pipe seaming and corrugating machine, complete. Address W-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Wanted—Tinners' tools. Must be in good condition. Name price for cash, also give list of tools for sale. Address 208 E. 5th St., Rock Rapids, Iowa. L-516

Wanted—Second hand rising hammers and 4-head tea kettle stake. Address J. Zicke, 440 West Chalmers St., Youngstown, Ohio. X-515

MISCELLANEOUS

Wanted—2,500 full enamel gas ranges 16-in. oven of modern design. Describe fully and best cash price. Address Z-514, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Floor cases, counter cases, open table, scales, cash register, Sunstrand adding machine, Oliver typewriter, F. E. check protectors, squaring shears, plumbing tools, etc. Address George H. Frise, Estate, Odell, Illinois. J-515

CLEAN HOMES FOR \$2.00 !!!

Have your furnace double sealed with INSALUTE CEMENT (liquid porcelain). Applied like paint, does not require the furnace to be re-set. Used by hundreds of furnace installers throughout the country. Place your order for an 8 lb. can at \$2.00 today!

TECHNICAL PRODUCTS COMPANY
2308 Main Street Pittsburgh (15) Pa.



Are You looking for more sales?

WARM Air Furnace and Furnace Supply Manufacturers who are desirous of securing high grade sales managers and worth while traveling men will find that a Special Notice advertisement in these columns will produce results.

AMERICAN ARTISAN

has put many a good man in touch with progressive manufacturers.

This is the best personnel market page in the field—use it.

SPECIAL NOTICES

The Rate for Special Notices
— displayed want ads —
\$3.00 per inch per insertion
When sending copy state whether your name or blind number is to be used—also how many insertions are desired.

PATENTS

HUBERT E. PECK
Patent Attorney
Barrister Bldg., WASHINGTON, D. C.

SALESMAN WANTED

Well known manufacturer of warm air furnaces and boilers has opening for traveling man to work in State of Indiana. Particularly interested in man who has acquaintances and following with trade in this territory. Address X516, American Artisan, 139 N. Clark St., Chicago, Ill.

Experienced Furnace Salesmen

To sell furnace insulation and covering to furnace dealers. Protected territory. Profitable line for full time salesmen, splendid sideline for salesmen calling on furnace dealers. Address Asbestos Fiber Co., Washington, Ia. T516



The NEW METAL WORKER PATTERN BOOK

A Complete and Systematic Course of Instruction in Pattern Cutting as Applied to All Branches of Sheet Metal Work

By Geo. W. Kittredge and Associates

NEW REVISED EDITION Including Some New Problems by FRANK X. MORIO
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1. Terms and Definitions. Alphabetical List of Terms.
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3. Linear Drawing.
4. Geometrical Problems. Construction of Regular Polygons. The Ellipse. The Volute.
5. Principles of Pattern Cutting. Parallel Forms. Regular tapering Forms. Irregular forms. (Triangulation) Mixed or Combination Forms. Automobile Patterns. Index.
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